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THE ARCHITECTURAL FORUM



DECEMBER
1921

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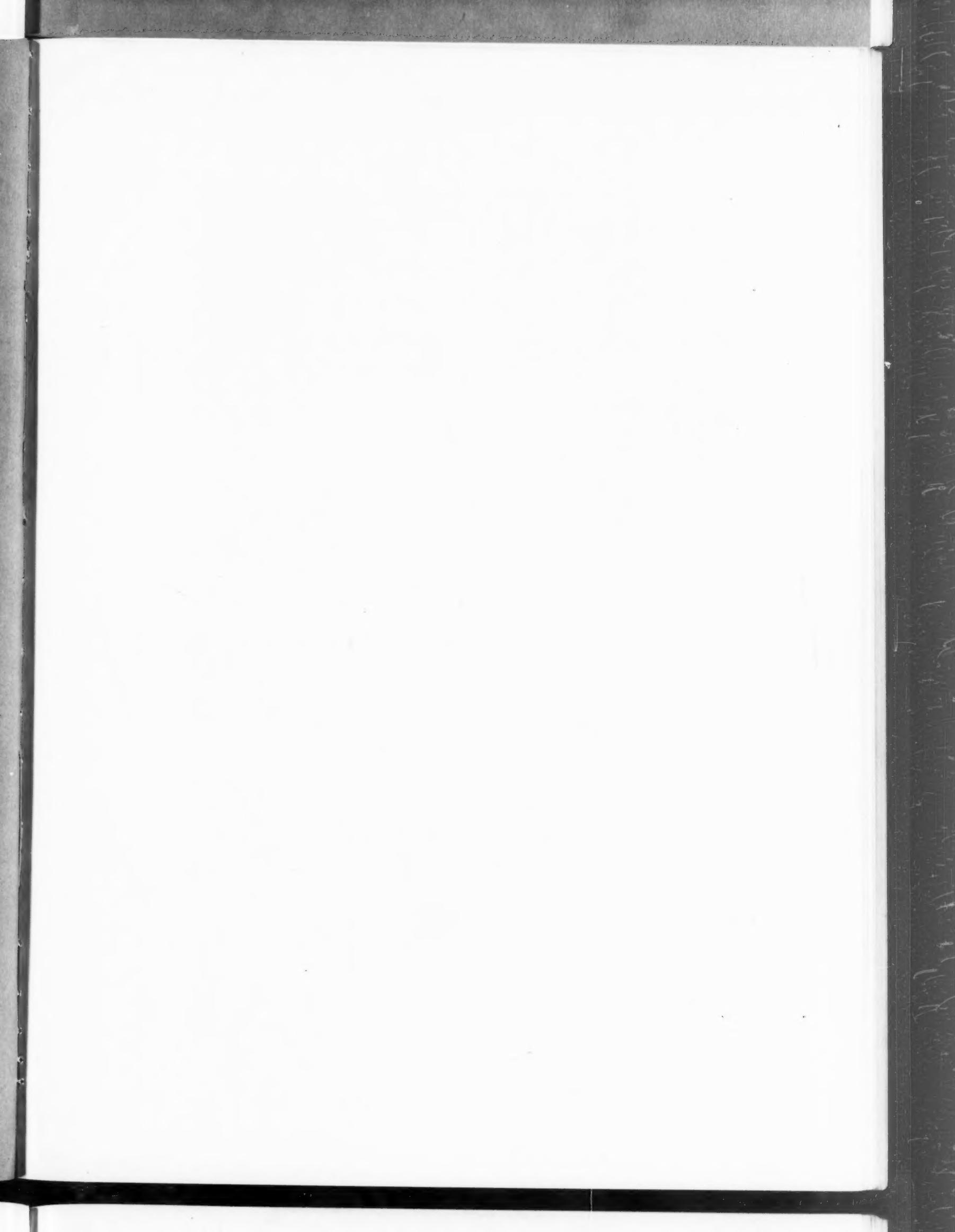
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DETAIL OF SGRAFFITO
PALAZZO DEL CONTE DI BOUTOURLINA, FLORENCE

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Sgraffito and Its Application

By MALCOLM RICE

THE application of sgraffito on plain surfaces, as a decorative art, has to a great degree been misunderstood by both artists and artisans in America. As stucco has played such an important part as a building material and its application is so well understood, it seems only reasonable to advance from plain stucco surfaces, when occasion permits, to the introduction of sgraffito. The same precautions are taken in good sgraffito work as are taken to insure permanent stucco.

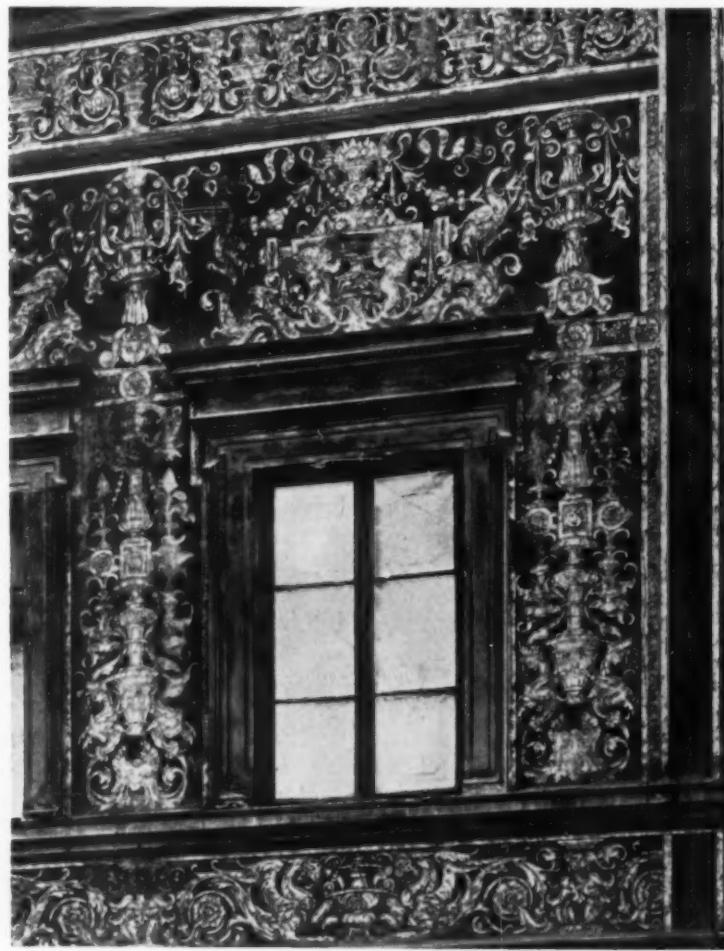
The understanding of stucco by the Romans is attested by the well preserved examples that have come down to us and it is only natural that, when the artists of the renaissance went to Rome to study the classic, they should have absorbed some knowl-

edge of its application. As sgraffito is an outgrowth and development of stucco, with the addition of a certain proportion of lime to make it plastic while working it, this work has assumed the permanency of Roman stucco, plus the half childlike but wholly experienced spirit and temper in drawing which blossomed with the renaissance.

The translation of the word "sgraffito," derived from the Italian word for scratch work, gives us the exact character of this work. It is a decorative art, scratched or etched with great cleverness of drawing, on plaster, using a metal point or scraper. The draftsman who attempts to design sgraffito must have a thorough knowledge of the technique of pen and ink drawing, and a good working knowledge of



Detail of Sgraffito Decoration, Palazzo Spinelli, Florence, Italy



Sgraffito Decoration, Second Story, Palazzo Sertini

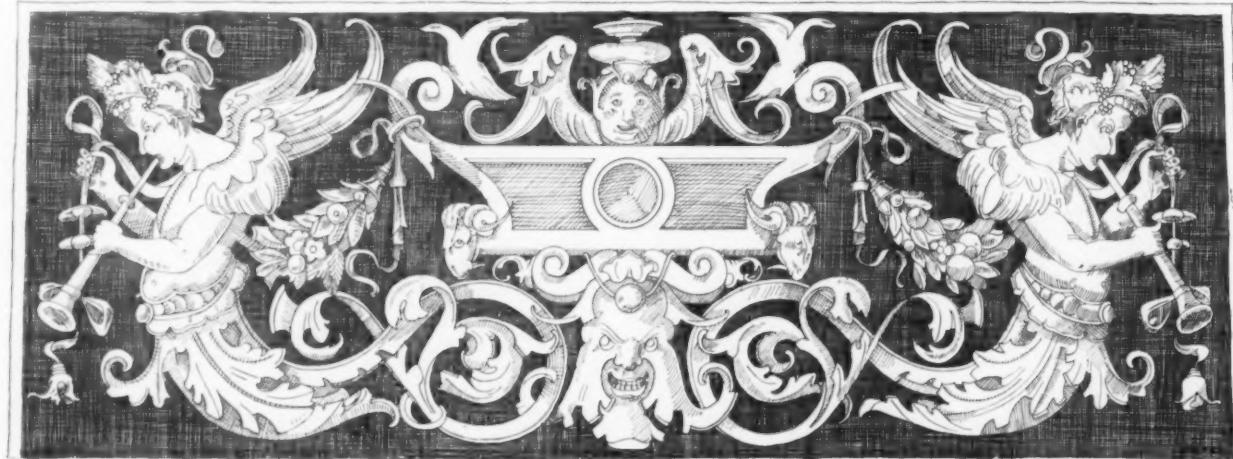
charcoal drawing. He must, in working up cartoons, which in all cases are full size, carefully consider a pleasing distribution of openings and solids. It is also necessary to have an appreciation of scale in the relation of subjects composing the cartoons.

In developing the cartoons it is well to make studies at the scale with which the draftsman is

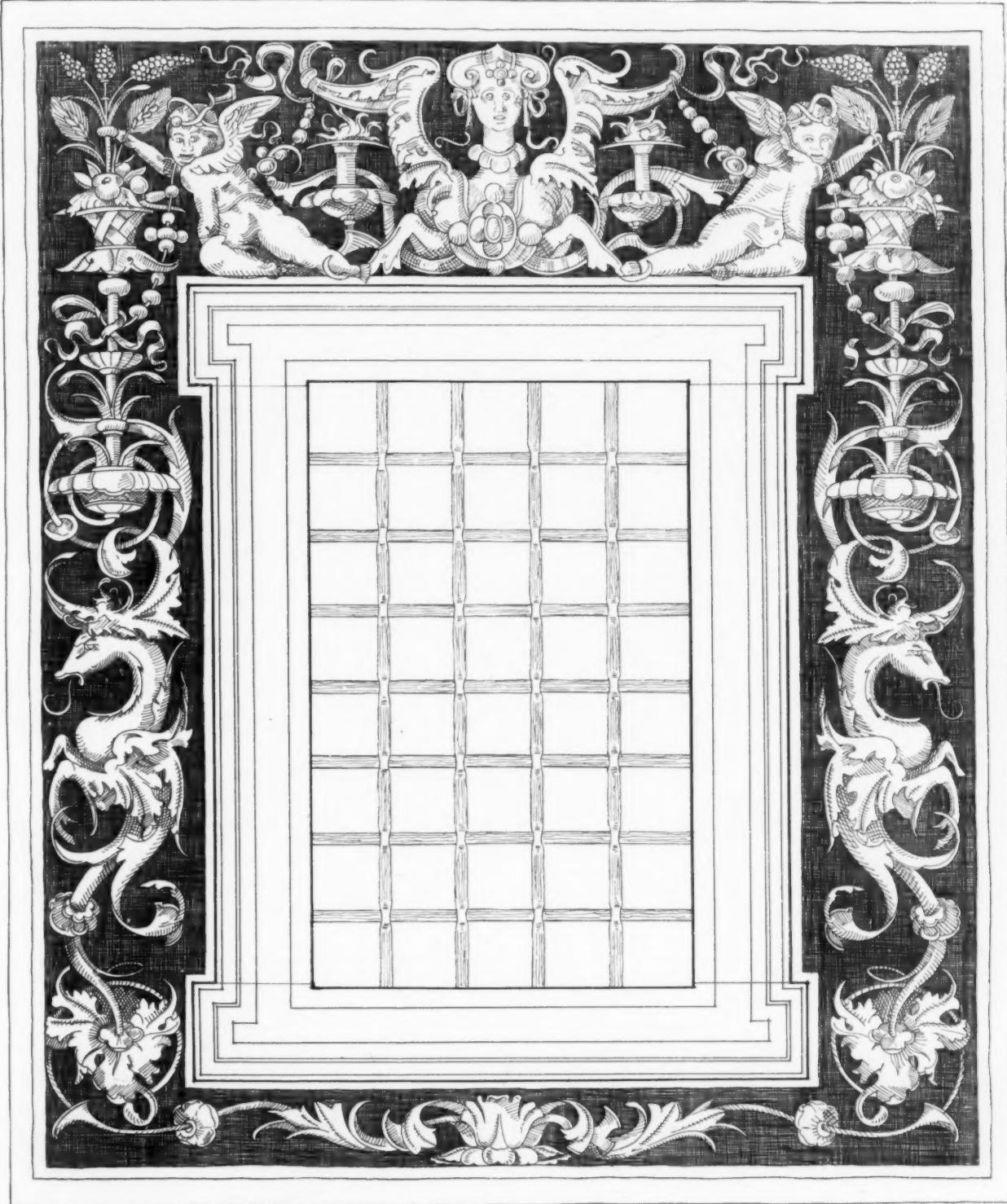
most successful in securing the relative values of light and dark. These studies should be carried to quite a finished stage before making full sized cartoons. It is noticed in the best examples, such as the Palazzo Sertini, Palazzo del Conte di Boutourlina and others, that there is a predominance of the light relief over the dark field. The subjects used in the design are unlimited, as will be observed by careful study of such examples as still remain. The artist has thrown restraint to the winds and satisfied all his sense of humor, pathos and satire in giving to this work a festive air, rendered in his most exquisite drawing. The design of sgraffito, to be successful, cannot be approached in a light or frivolous manner as the success of the work completely depends on the care, study and excellence of drawing on the full sized cartoons. In making these cartoons full size, they should be freely worked up in charcoal. Strength, simplicity, swing and directness are always the qualities striven for, the modeling being derived from lines, not blending. The final working drawings should be made on heavy detail paper and in hard, bold lines clearly showing the exact outlines.

Before applying the full-size drawings to the prepared plaster wall, the outlines of the design are perforated and sandpapered on the opposite side to prevent holes from becoming clogged when ap-

plied to the plaster. The detail is then put in place and the impression on the plaster obtained by pouncing through with a muslin bag filled with charcoal. Before the plaster, on which these cartoons are to be stenciled, is applied, the wall must be well tapped, sounded and calked. It is also well to soak the wall with water to prevent suction, but care must be taken not to get it too wet as it pre-



Sgraffito Decoration over Main Entrance, Palazzo Sertini, Florence, Italy
Executed by A. Fe'trini, 1510. Measured and drawn by Malcolm Rice



SGRAFFITO DECORATION
AROUND WINDOWS OF FIRST STORY
PALAZZO SERTINI, FLORENCE, ITALY
EXECUTED BY A. FELTRINI, 1510
MEASURED AND DRAWN BY MALCOLM RICE





Detail of Sgraffito Decoration, Palazzo Rasponi, Florence, Italy

vents the plaster from drying quickly and evenly.

In the preparation of the plaster and the proportion of sand, cement and coloring matter used, it is impossible to give a uniform specification, as the climate, atmosphere and barometric conditions control the retarding or hastening of the setting of the plaster. It is necessary to make several samples of cement plaster, varying in mixture, before commencing work. The first coat is a strong concrete mixture, applied several days before the coats used for decoration, and left with a rough surface. It is made up of a 1 : 2 mixture of high grade Portland cement and clean, sharp sand, not too quickly

setting. The second coat consists of marble dust, cement and whatever color may be desired. This coat should be applied before the first has completely dried, but after it has obtained its initial set. It is from $\frac{1}{8}$ to $\frac{1}{4}$ inch in thickness and perfectly applied.

The third coat consists of lime, fine marble dust, cement and whatever color is desired. It is mixed in a liquid form and applied with a soft brush before the second coat has set, to take the decoration. The total thickness of the coats is from $\frac{3}{4}$ inch to one inch. In the use of lime to prevent plaster from setting too quickly, care must be taken in the quan-



A Study in Sgraffito by Malcolm Rice

tity used, as too much is apt to cause hair cracks to appear in the finished work. This can be to a great extent overcome by using newspapers or blotting paper, well soaked with water, applied to the plaster. It is possible to model the surface in greater relief, as in the third story windows of the Alexander Building, New York, designed by Carrere & Hastings, architects, to accentuate certain architectural features in design. Care must be taken not to begin more work than can be finished in one day's work.

Complication in color should be avoided, although it is possible to introduce as many as three or four colors. Earth pigments give the best results, colors which are always reliable being ochres, umbers, Turkey red, Indian red and lime blue. These colors may be mixed to give any shade desired. Many colors may also be gained in the use of marble dust. If black or depth of tone is desired, charcoal, burnt straw or burnt paper is used. Brick dust has been used but with small success, as it is absorbent and the color soon fades. When blue is used in the color coat, it is likely to set more quickly and in drying a film of saltpeter develops. This may be removed with a stiff brush and a damp rag. A craftsman who is an authority on sgraffito believes the essentials of this work are clean, sharp sand properly graded in size, high grade Portland cement and the best qualities

of raw materials. Particular stress should be laid on the length of time elapsing between coats.

Sgraffito lends itself to broad architectural surfaces and was regarded by the late Stanford White as "the missing link in architectural design." It will adapt itself to loggias, vaulted ceilings, courts and patios. Outside of these forms, with appropriate subjects in the design, it can be made invaluable in garden and landscape work, as decoration at the end of vistas, and points of interest to be accentuated by spots of color. It is purely a decorative art and should be considered as having the same relation to exteriors that rugs, tapestries and murals sustain to interiors. Sgraffito is a direct medium of supplying the much desired and much needed color to our formal, informal and rural buildings in America.



Sgraffito Decoration, Third Story, Alexander Building, New York
Carrere & Hastings, Architects



Sgraffito Decoration on Frieze of Booth Theater, New York
Henry B. Herts, Architect

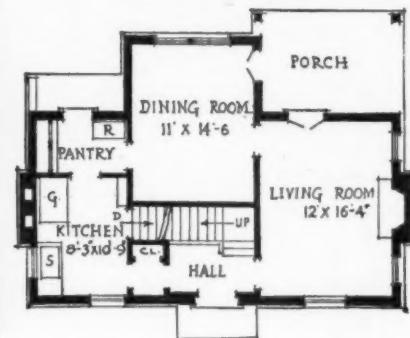
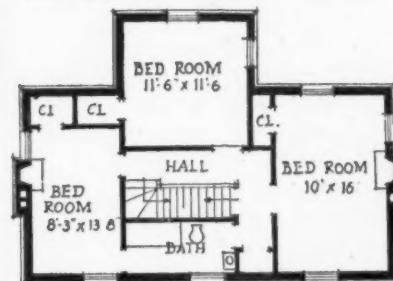
A Small Brick House, Moorehead, Minn.

OLAF WILLIAM SHELGREN, ARCHITECT



VIEW FROM STREET

SCALE 0 5 10 15 20 25 FEET



MANY competitions for small house designs have been held, but illustrations of houses actually built from such designs are rarely seen. To those who have wondered what a competition house would look like in execution, we direct attention to these illustrations.

This design as presented in the sketch above was awarded first prize in the competition conducted by THE ARCHITECTURAL FORUM in 1919 under the patronage of the American Face Brick Association. It was built in 1920 at a cost of \$14,000. The design has been carefully followed in practically all essential details, but the absence of the decorative brick panel over the entrance is noticeable because it served a necessary purpose in giving emphasis to the doorway which the completed building lacks.



VIEW FROM REAR GARDEN



J Restoration of a Southern Colonial Estate

"YORK HALL," THE RESIDENCE OF CAPTAIN GEORGE P. BLOW, YORKTOWN, VA.

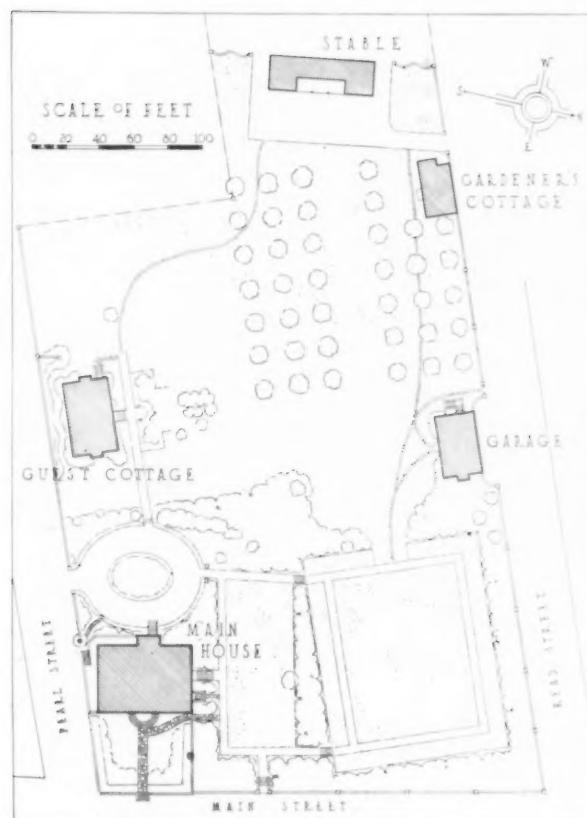
GRIFFIN & WYNKOOP, ARCHITECTS

YORK HALL is one of the many old estates in Virginia in which are plainly reflected the fashions in architecture and decoration which were current in England during the eighteenth century. Its very location may have presupposed a certain degree of excellence, for Yorktown was built by order of the crown, from a plan evidently

prepared in England, as a port of entry for all the British colonies in America. Captains of vessels bound for any of the ports along the American coast were obliged to clear at Yorktown before proceeding upon their way, and in what must have been an outpost of royalty the house of a prominent citizen would naturally be built with a con-



View of "York Hall" before Restoration Looking into Forecourt



Plot Plan of "York Hall"
Charles F. Gillette, Landscape Architect

siderable degree of architectural merit and finish. This old estate, with its house built in 1740, was at the time of the revolution the home of Thomas Nelson, Jr., patriot, soldier and statesman, who was one of the signers of the Declaration of Independence and also Governor of Virginia—honors which involved the sacrifice of his entire personal fortune

upon the altar of patriotism. Governor Nelson's home was used as the headquarters of Lord Cornwallis during the siege of Yorktown which was conducted by troops from all of the 13 original states and by the French under Lafayette. The scars which war left upon the Hall are not only those received during the revolution, for in the civil war Yorktown figured in McClellan's peninsula campaign against Johnson and Magruder, and later in the war the Nelson house was used as a hospital by the union army. At this period of its existence circular holes were cut in the door panels to enable the nurses to supervise the wards and traces of these may be seen in some of these illustrations. Like many other old southern homes York Hall fell into semi-ruin and decay until it was purchased and restored by Captain George P. Blow, whose home it now is. The restoration has been carried out with the utmost care to preserve the eighteenth century character of the house; parts which it was necessary to restore were studied from other parts still in place and woodwork was worked by hand to agree with that originally used.

Although it was possessed of ample grounds the original owner elected to place the Hall so that one end should be close to the side street, with a small forecourt in front of the house which formed the principal approach from the main street. The building itself is a solid, substantial pile of markedly English lines, such as were favored by prosperous citizens in Virginia, Maryland or lower Delaware, of brick with keystones at the windows and quoins at the corners cut from stone, a string course of brick surrounding the house between the lower and upper stories, and with a heavy dentiled cornice around the house and up the gable slopes. The brick used were probably brought as ballast from the kilns of England or Holland and are larger than modern brick—9 inches long, $4\frac{1}{2}$ inches wide and $2\frac{5}{8}$ inches thick, of a dull, brownish red approaching rose color, and laid in Flemish bond. The headers are of a dark, dull blue glazed brick with the red body showing through the glaze, and gray mortar is used in joints $\frac{1}{8}$ inch wide. A smaller brick of smoother texture and laid with narrower joints is used about doors and windows and for the brick pilasters at the main entrance.

In its plan the house adheres to the arrangement customary in the homes of substantial colonists of the period; a



View from Main Road Showing Old Box Hedge

wide hallway extends through the house, giving access to four square rooms on each floor. The hall contains the stairway, planned with two landings, which was restored from a few remaining balusters and a section of handrail, together with the mortise holes in the old treads. The importance attached to a large central hallway in the southern colonies was undoubtedly responsible for the compromise between plan and elevation. The house is not as large as the first impression of the illustration would lead one to believe; its dimensions are 56 feet across the front and 40 feet deep. This is due undoubtedly to the extremely large scale employed

in the design. There is a consistency in the scale throughout and the very happy relation of parts produces a domestic effect in spite of the boldness of execution. The same vigorous handling is noted in the interior, the first floor rooms are 12 feet high and the windows, which are given vertical prominence by the use of pilasters or special paneling, are 7 feet high. The interior doors on the other hand are only 7 feet high, which tends to emphasize the largeness of scale.

Practically all of the rooms are paneled in wood from floor to ceiling. The only exception for a principal room is the second floor hall where the paneling occurs only at the ends, the side walls being of plaster. There is a remarkable dignity about this old paneling and it can be ascribed to the pleasing proportions of the wall divisions and the extreme simplicity of the mouldings. The typical panel mould is a simple, flat quarter round made a part of the rails and stiles, and the panels themselves have their edges beveled to give them prominence. In the dining room is found the only exception; here the raised portion of the panel has a bead surrounding it and the panel mould consists of a small ovolo and bead. One detail worthy of notice is the entire absence of sharp external angles; wherever such angles occur they are finished with a bead. This is employed even on the edges of pilasters and the effect is particularly pleasing. Another individual detail is the use of a heavy moulding resembling a label mould over some of the windows and placed just below the room cornice.

The interior trim of York Hall affords an interesting study of the colonial following of

Elliptical Forecourt at North Side of "York Hall"

the Georgian style which prevailed in America. Mouldings throughout were necessarily worked by hand and show many departures from the strictly accurate form to which we are accustomed; much of the interest of this interior woodwork lies in the slight changes at various points necessary to make



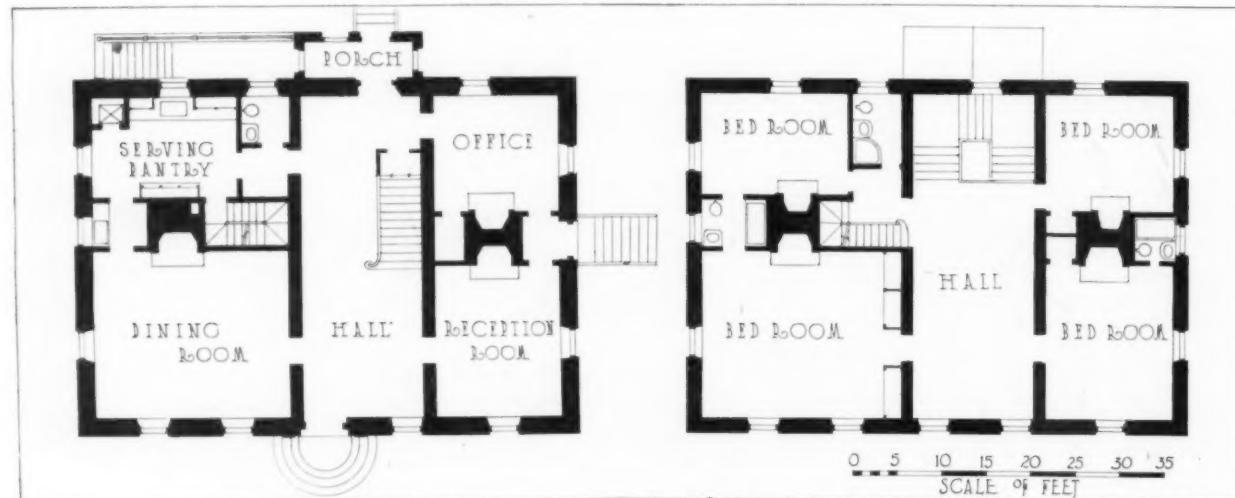
The Forecourt from the Guest Cottage
Showing the original planting now improved



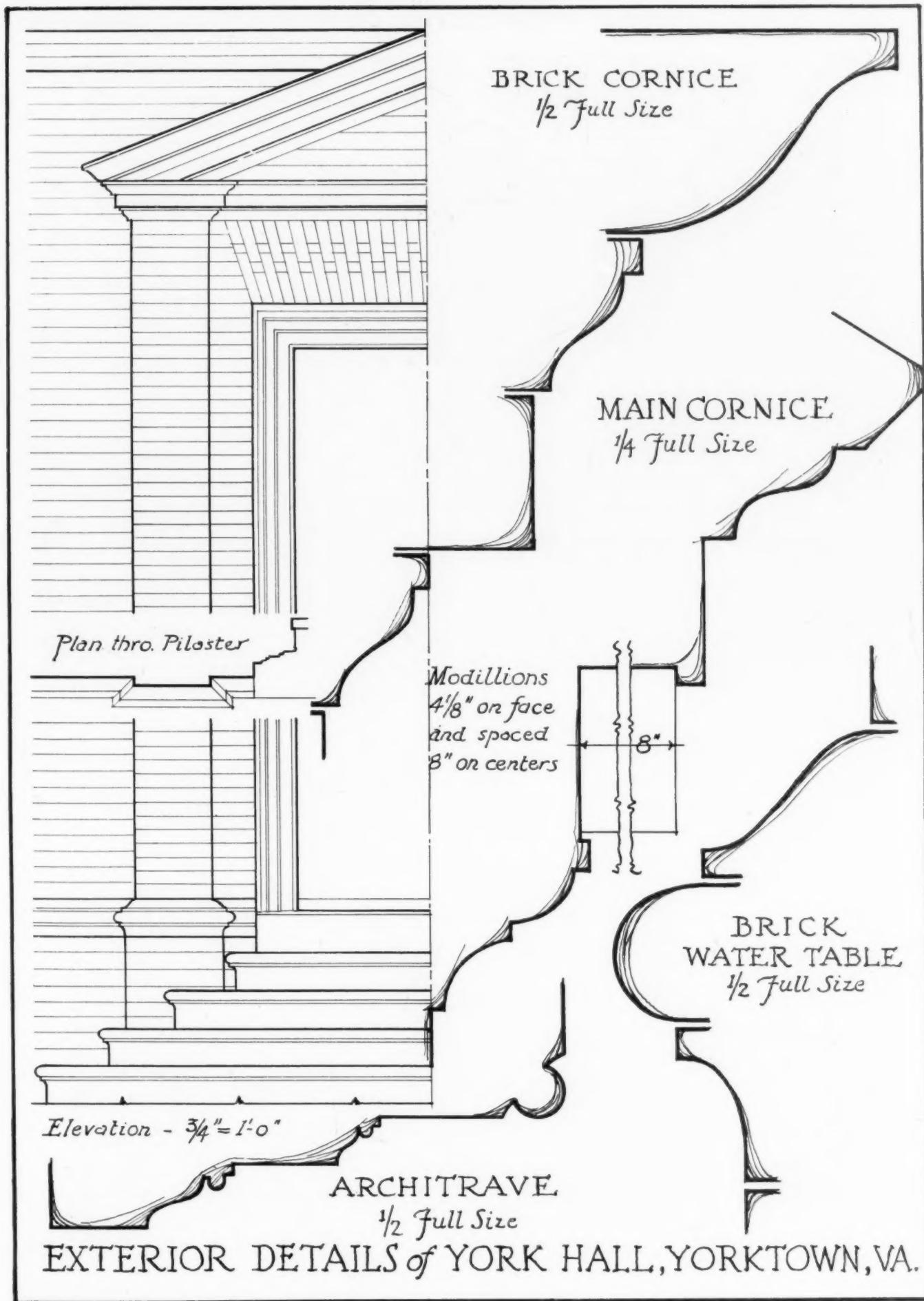
Main Elevation of "York Hall" after Restoration

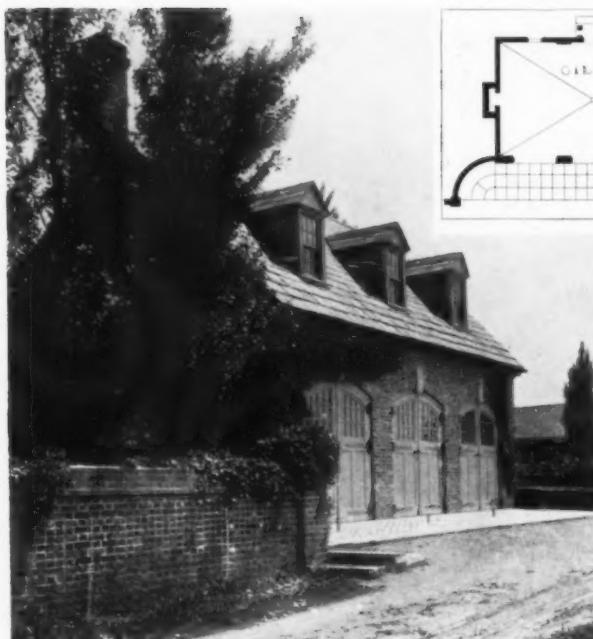
the joinery more perfect. A moulding may change in size and profile two or three times in encircling a room. Several of the paneled rooms are arranged with pilasters supporting the entablature and the curiously fashioned capitals of the pilasters in the dining room are said to have been made by slave workmen from someone's meager description of the

Corinthian capitals of Christopher Wren or Inigo Jones. This old dining room is of splendid proportions and dignity; it has a width of 22 feet, a depth of 19 feet and height of 12 feet. The portrait of an old English officer above the mantel helps create an atmosphere in which one may almost feel the presence of the Red Coats, and the hangings and furni-



First and Second Floor Plans, "York Hall," Yorktown, Va.





Exterior and Plan of Garage

ture reflect the color and splendor of the eighteenth century. The chief thought of the original builders was given to this room as is evidenced by the greater elaboration in pilasters, cornice and mouldings.

Special reference should be made to the finish of the interior walls. Examination of the old paneling indicated a definite color scheme for each room, and curiously enough the successive coats of paint showed that the original color schemes had been adhered to in previous periods of redecorating.

The wood is Virginia pine and when the paint was removed it was found to have turned to a red tone resembling that of rosewood or mahogany. All interior woodwork was removed and fumigated during the reconstruction and its present condition may be said to be as good as when originally erected.

The several rooms have different color treatments; the dining room walls are in lavender and old rose, the drawing room in yellow and white, the study in black and red, and the various bedrooms are blue-gray, green and blue and brown. To give a description of these color effects is not easy; they are not obtained with pure color and the effect is



The Guest Cottage before Remodeling



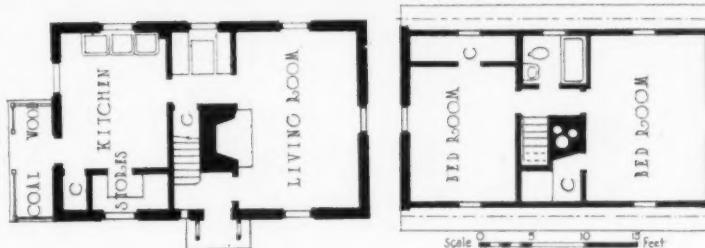
View of Guest Cottage Showing Its Relation to Main House and Its Individual Garden Reconstructed from Old Growth on the Estate

not so kaleidoscopic as the list just given might suggest. They are toned colors, purposely aged in appearance, and are distributed in area in accordance with structural divisions with only a slight degree of difference as may be seen from the accompanying black and white reproductions. The impression in passing from one room to another is a difference in general tone that adds interest to the interior without being strikingly apparent.

A better impression of the effect may be had from a description of the methods employed. In the study, for instance, the color scheme is black and red. The wood was first given a slightly yellowish ground with paint and over this black and Chinese red in their respective positions were wiped on and rubbed down, the red being the secondary color and applied to the bevel of panels and parts of mouldings. All surfaces were then stippled with a purple glaze and dusted. This produced a very mellow and aged effect, the wiping of color leaving the recesses of mouldings and slight imperfections in the wood darker in tone than flat or round surfaces. The appearance of the walls, however, is not in the least "painty"; the colors are put on in thin mediums and the wiping and rubbing afford an opportunity of sensing the



Approach to Guest Cottage from Main House



Floor Plans of Gardener's Cottage



Gardener's Cottage Modeled on Lines of Old Local Fishermen's Cottages



CORNER OF DRAWING ROOM
WALLS DECORATED IN ANTIQUED YELLOW AND WHITE
INTERIORS IN "YORK HALL," YORKTOWN, VA.



MANTEL IN SOUTHEAST BEDROOM
WALLS DECORATED IN ANTIQUED BLUE AND BROWN
INTERIORS IN "YORK HALL," YORKTOWN, VA.

texture of the wood beneath the colored surface. The yellow ground shows through the other colors, harmonizing them with the black and gold marble mantel facing.

The grounds of York Hall include a smaller building once used as a schoolhouse and of an earlier period than the main house, recalling in its lines the early English cottage, and this has been



Two Guests Rooms in "York Hall"

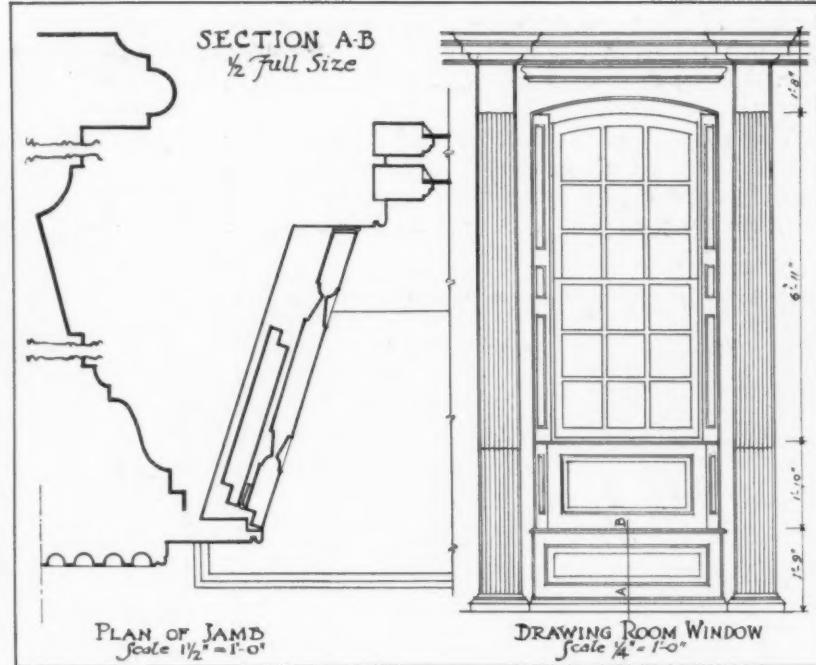
fitted up as a guest house. Originally fronting upon the road, its entrance has been changed so that it now faces into the grounds about the Hall from which it is reached by a broad walk. The formal garden has been restored and in its arrangement and in the setting of the guest house the landscape architect has used much of the old box which was



Living Room in Guest Cottage Decorated in Blue Green



Window before Restoration

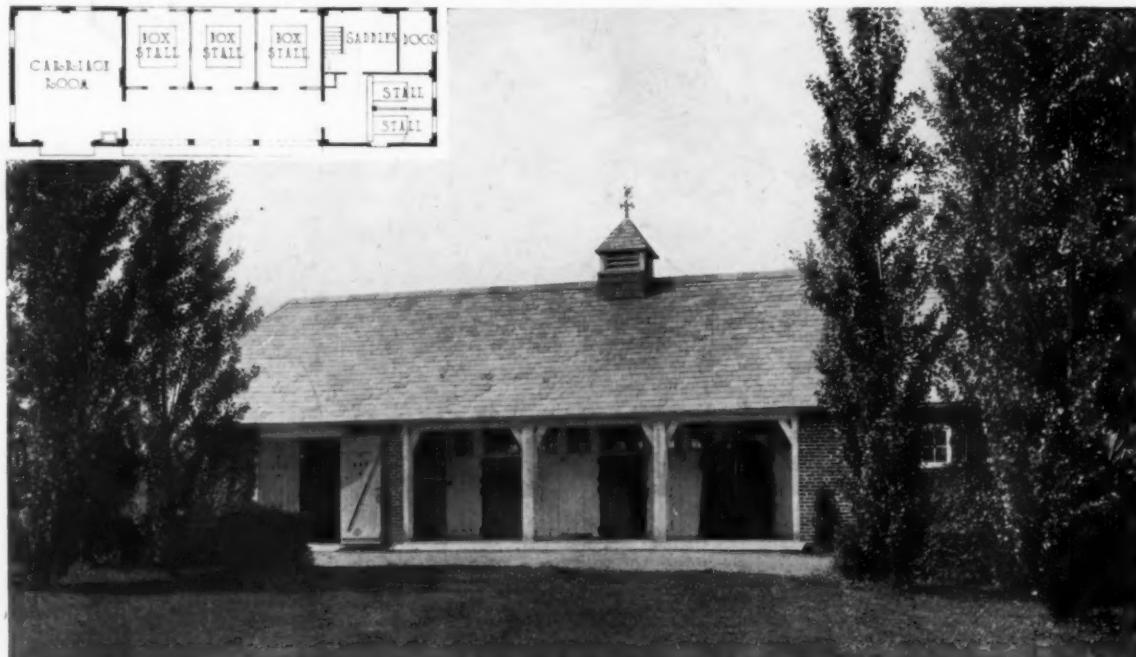
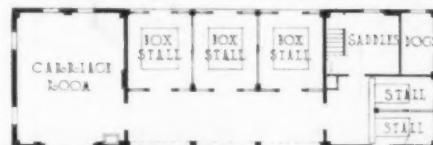


Details of Window and Trim in Drawing Room

originally upon the grounds. The space at the front of the main house, enclosed by a great box hedge, is now being developed to provide a small garden. The entrance from the street is being closed and a still pool arranged in the center of the space to reflect the old doorway, the foliage and the sky. One or two accessory or service buildings, such as garage and chauffeur's cottage which are necessary for present-day use, have been planned in the spirit of the older fishermen's cottages in the neighborhood. Owing to the presence of streets on

three sides of the property these buildings have been placed so that access to them and communication with the main house is had by the streets; this avoids a driveway put through the property. An interesting economy in construction is noted in the stable where 4-in. walls of brick are used between piers carrying the framing.

Complete in its appointments and consistent in its arrangement, York Hall is an unusual example of a historic estate which is in no sense a museum but, as in the eighteenth century, an American home.



View of Stable from Entrance Court

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THE ARCHITECTURAL FORUM

PLATE 77



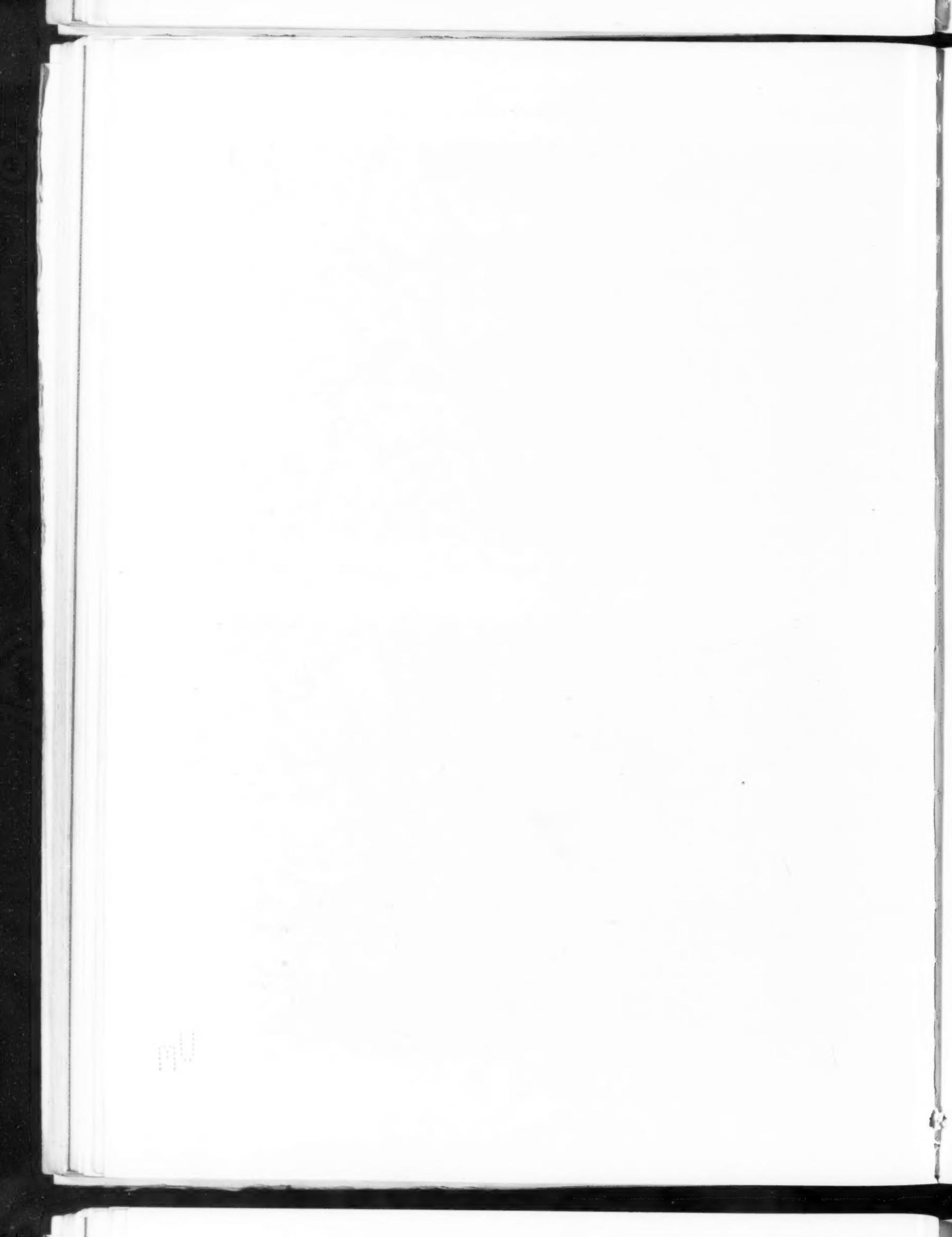
VIEW FROM THE GARDEN



FORECOURT GATE

"YORK HALL," HOUSE OF CAPTAIN GEORGE P. BLOW, YORKTOWN, VA.

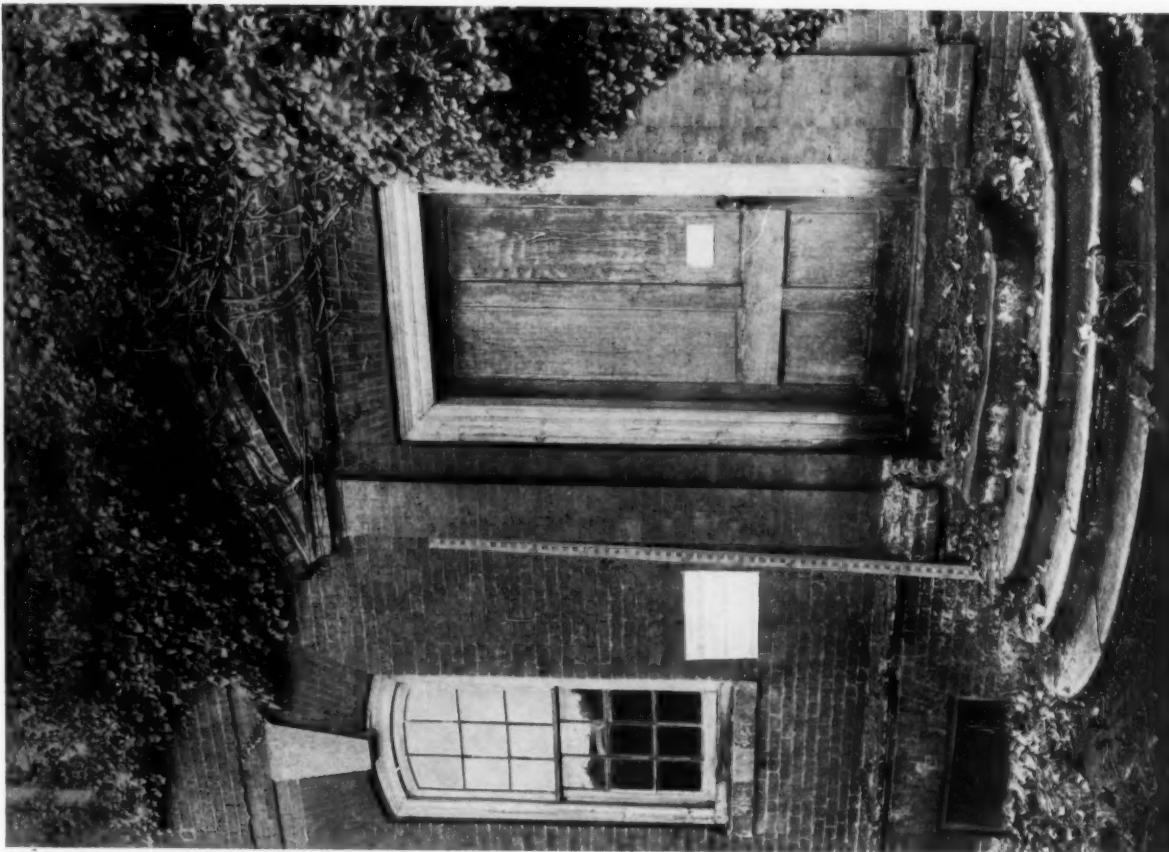
GRIFFIN & WYNKOOP, ARCHITECTS OF RESTORATION



DECEMBER, 1921

THE ARCHITECTURAL FORUM

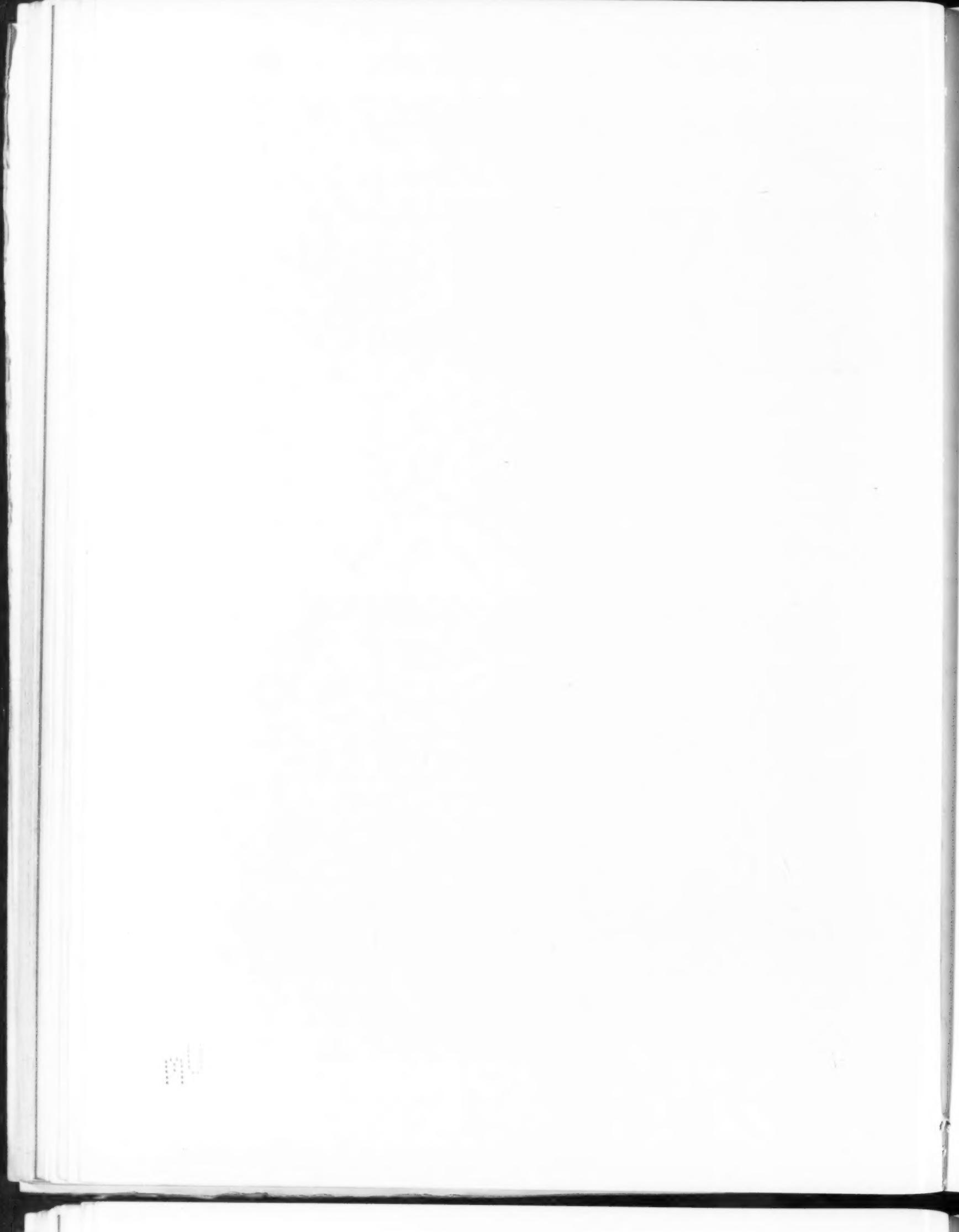
PLATE 78



RESTORED ENTRANCE AND ORIGINAL DOOR

"YORK HALL," HOUSE OF CAPTAIN GEORGE P. BLOW, YORKTOWN, VA.
GRIFFIN & WYNKOOP, ARCHITECTS OF RESTORATION

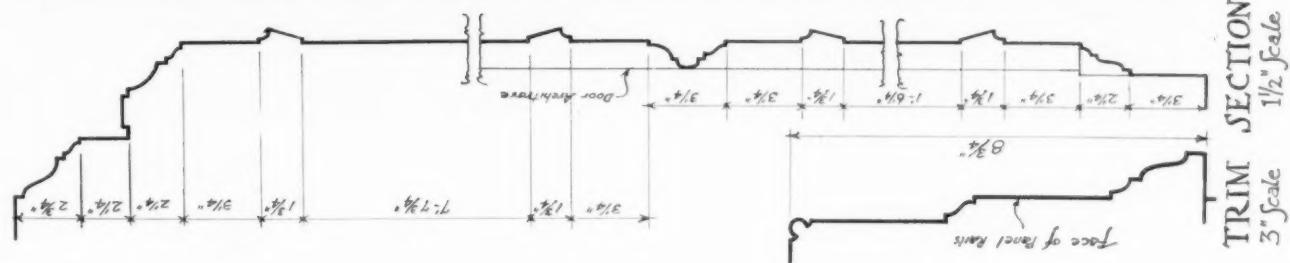






“YORK HALL,” HOUSE OF CAPTAIN GEORGE P. BLOW, YORKTOWN, VA.
GRIFFIN & WYNKOOP, ARCHITECTS OF RESTORATION
VIEW OF STAIR HALL

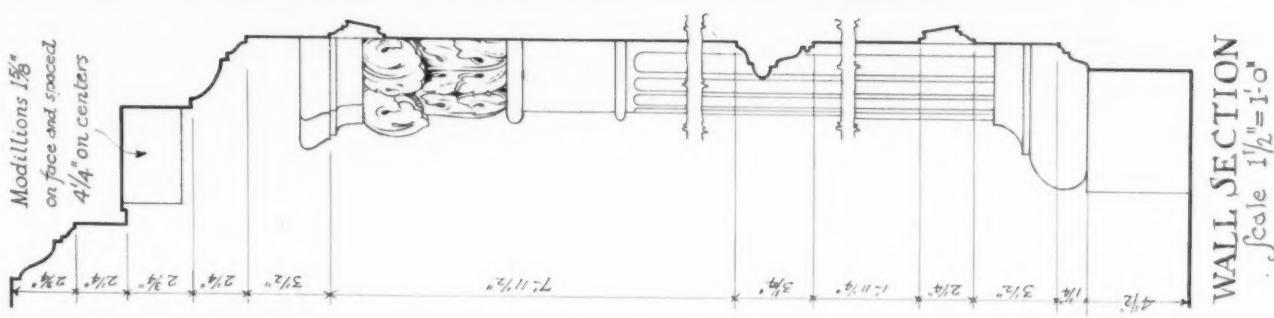
GRIFFIN & WYNKOOP, ARCHITECTS OF RESTORATION

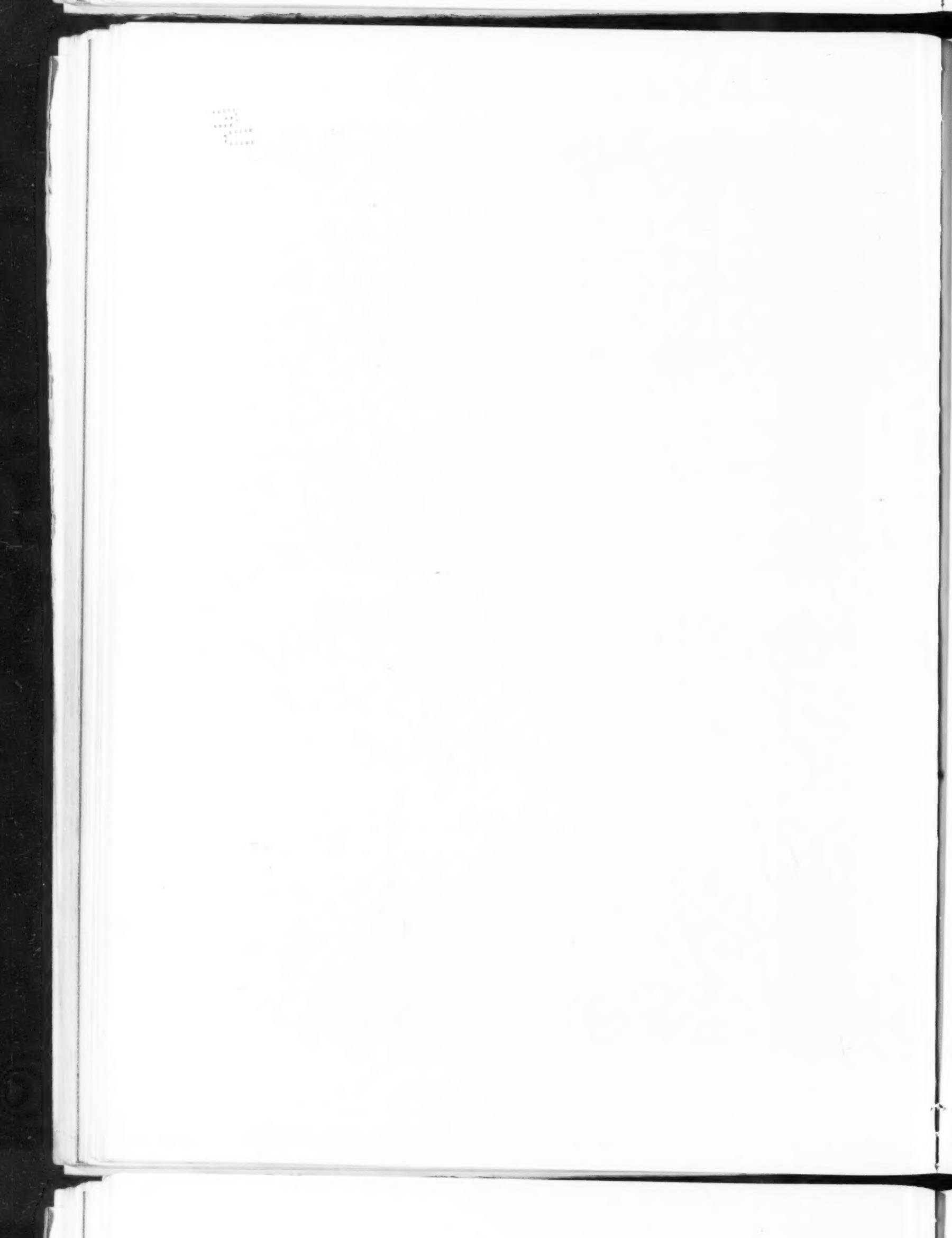






"YORK HALL," HOUSE OF CAPTAIN GEORGE P. BLOW, YORKTOWN, VA.
GRiffin & WYNKOOP, ARCHITECTS OF RESTORATION
VIEW OF DINING ROOM





DECEMBER 1921

THE ARCHITECTURAL FORUM

PLATE 81

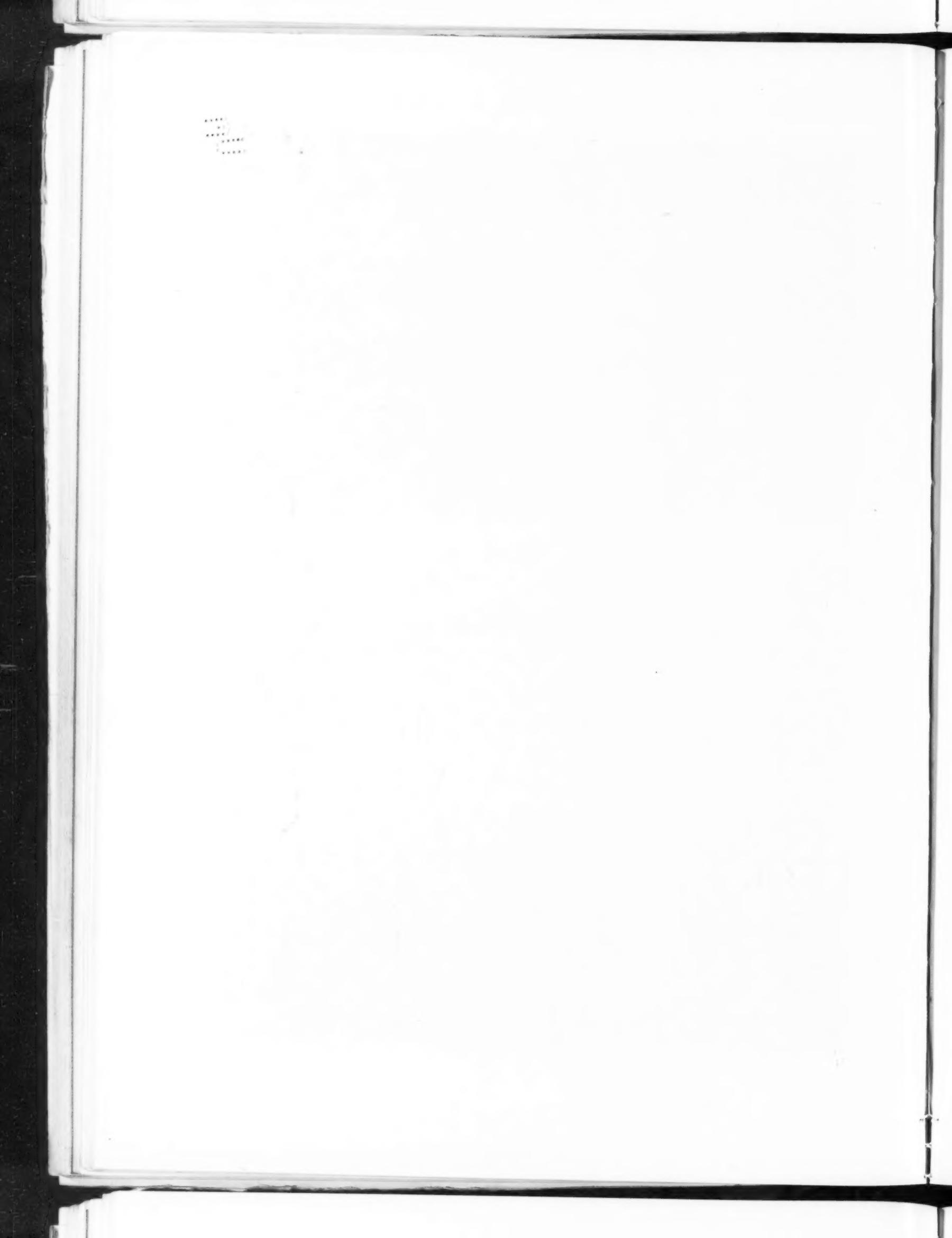


DETAIL VIEWS IN DINING ROOM

"YORK HALL," HOUSE OF CAPTAIN GEORGE P. BLOW, YORKTOWN, VA.

GRIFFIN & WYNKOOP, ARCHITECTS OF RESTORATION

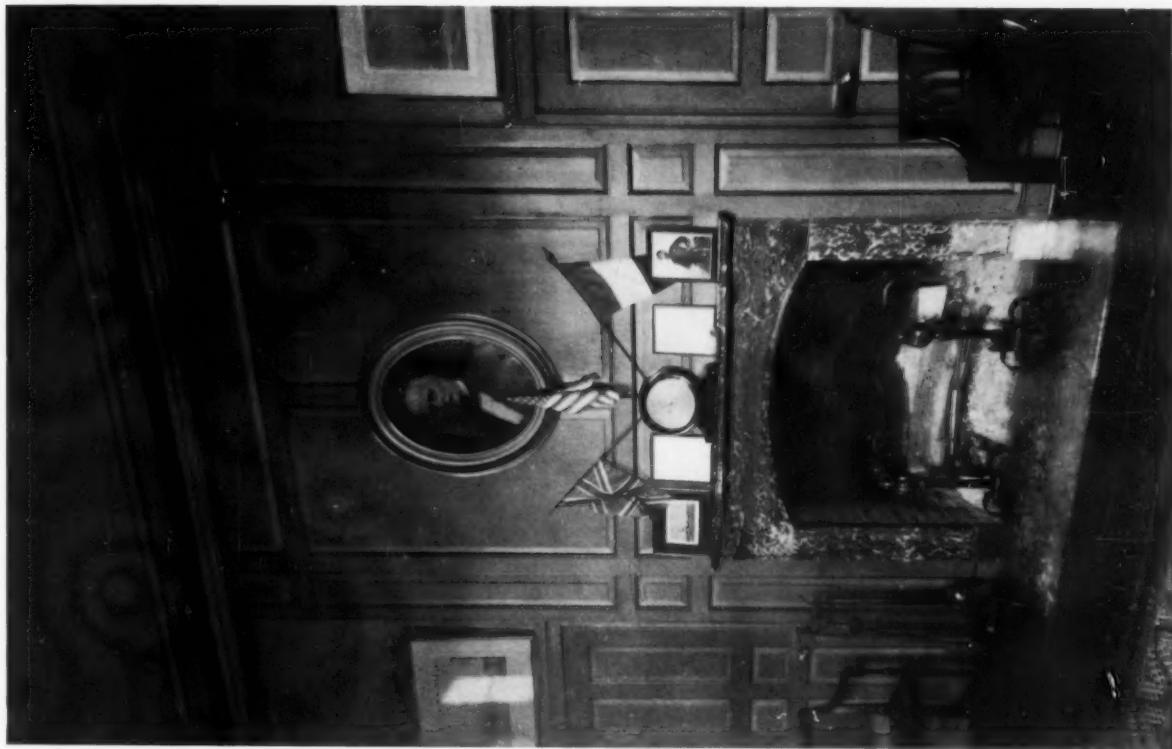




DECEMBER, 1921

THE ARCHITECTURAL FORUM

PLATE 82



CORNER AND MANTEL IN OWNER'S STUDY



"YORK HALL," HOUSE OF CAPTAIN GEORGE P. BLOW, YORKTOWN, VA.
GRIFFIN & WYNKOOP, ARCHITECTS OF RESTORATION

1968
1969
1970
1971

DECEMBER, 1921

THE ARCHITECTURAL FORUM

PLATE 63



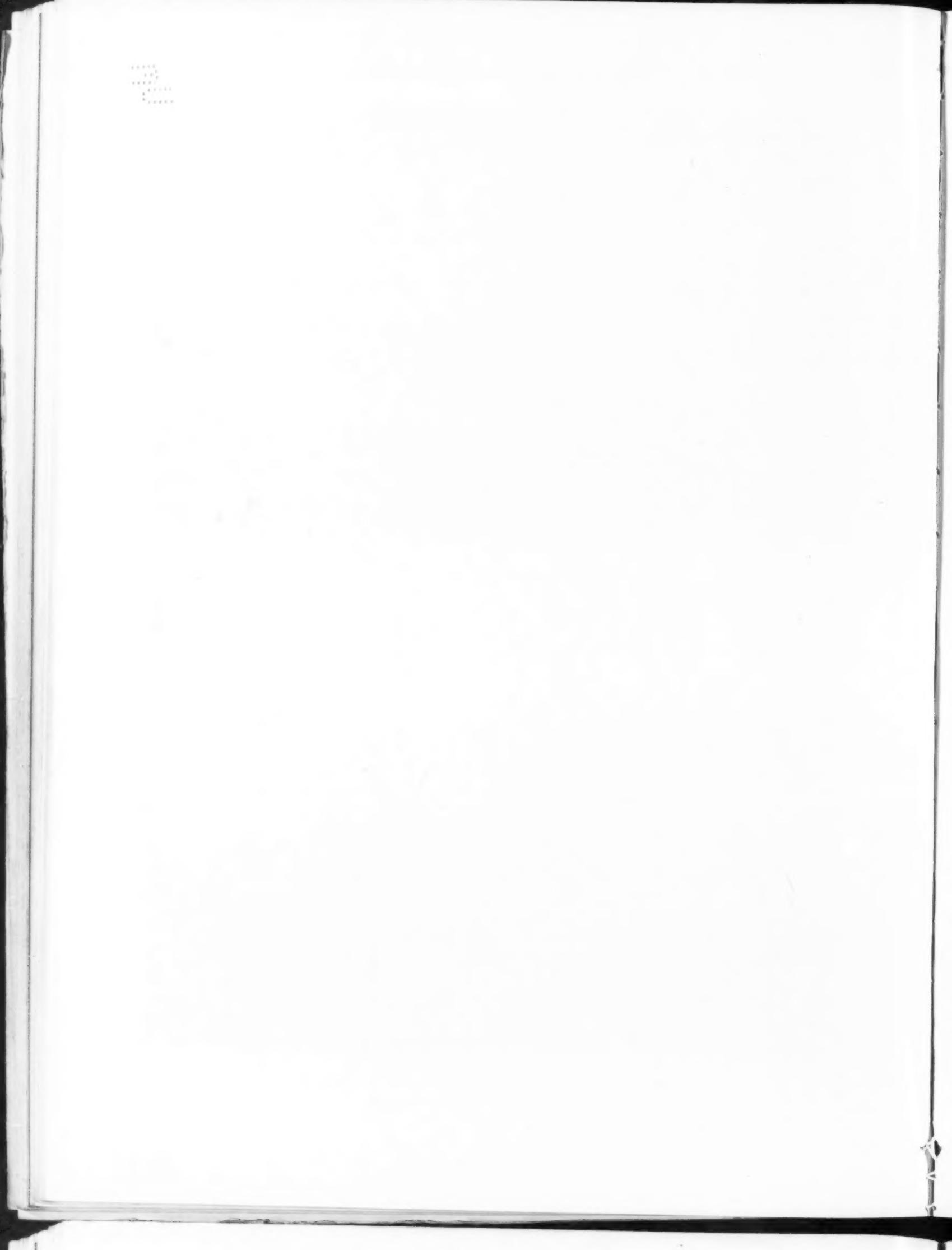
SECOND FLOOR HALL



PRINCIPAL BEDROOM

"YORK HALL," HOUSE OF CAPTAIN GEORGE P. BLOW YORKTOWN, VA

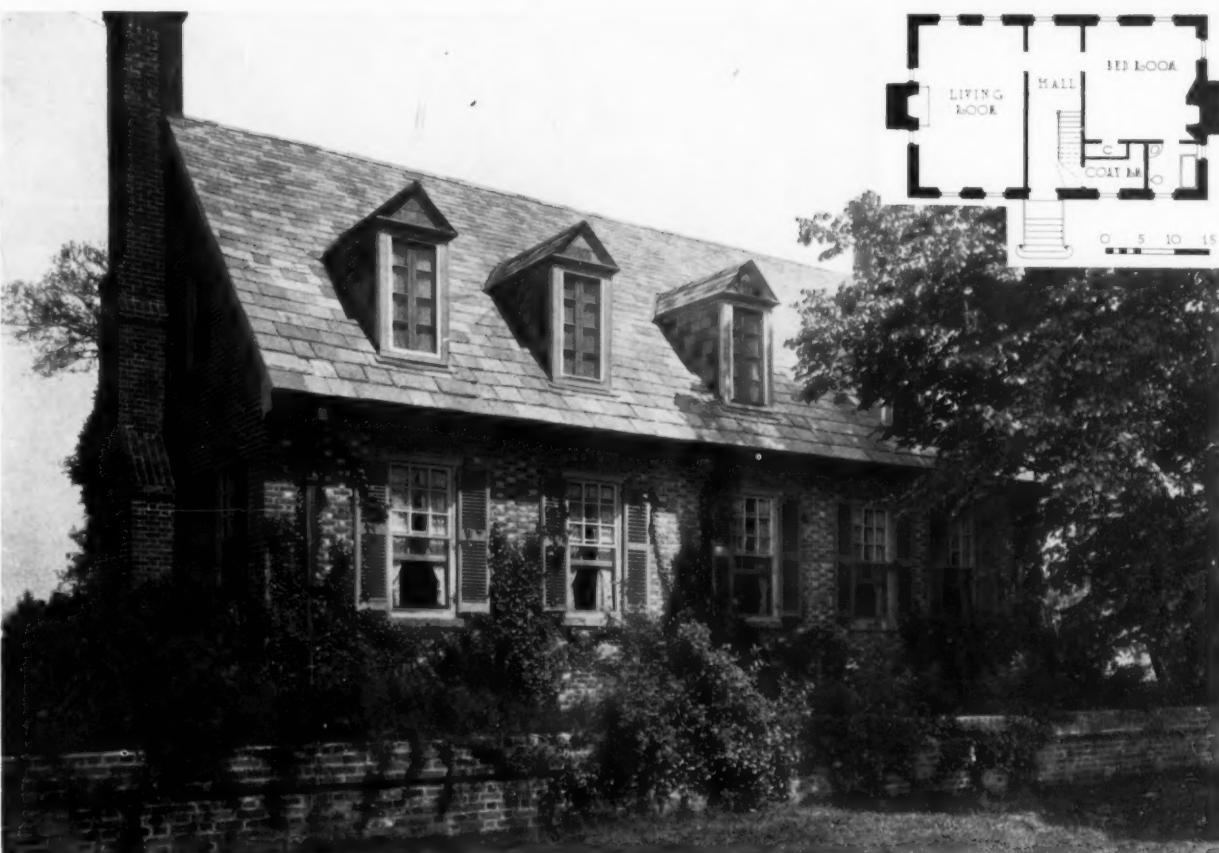
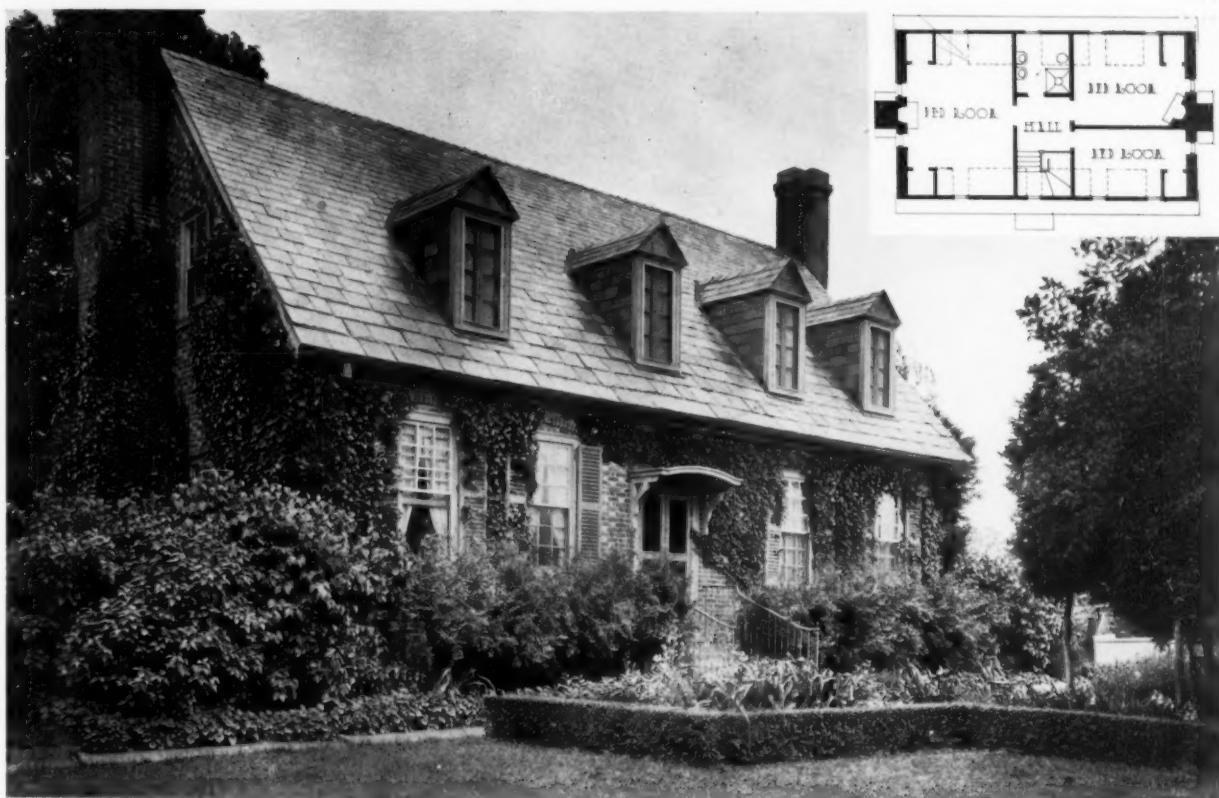
GRIFFIN & WYNKOOP, ARCHITECTS OF RESTORATION



DECEMBER, 1921

THE ARCHITECTURAL FORUM

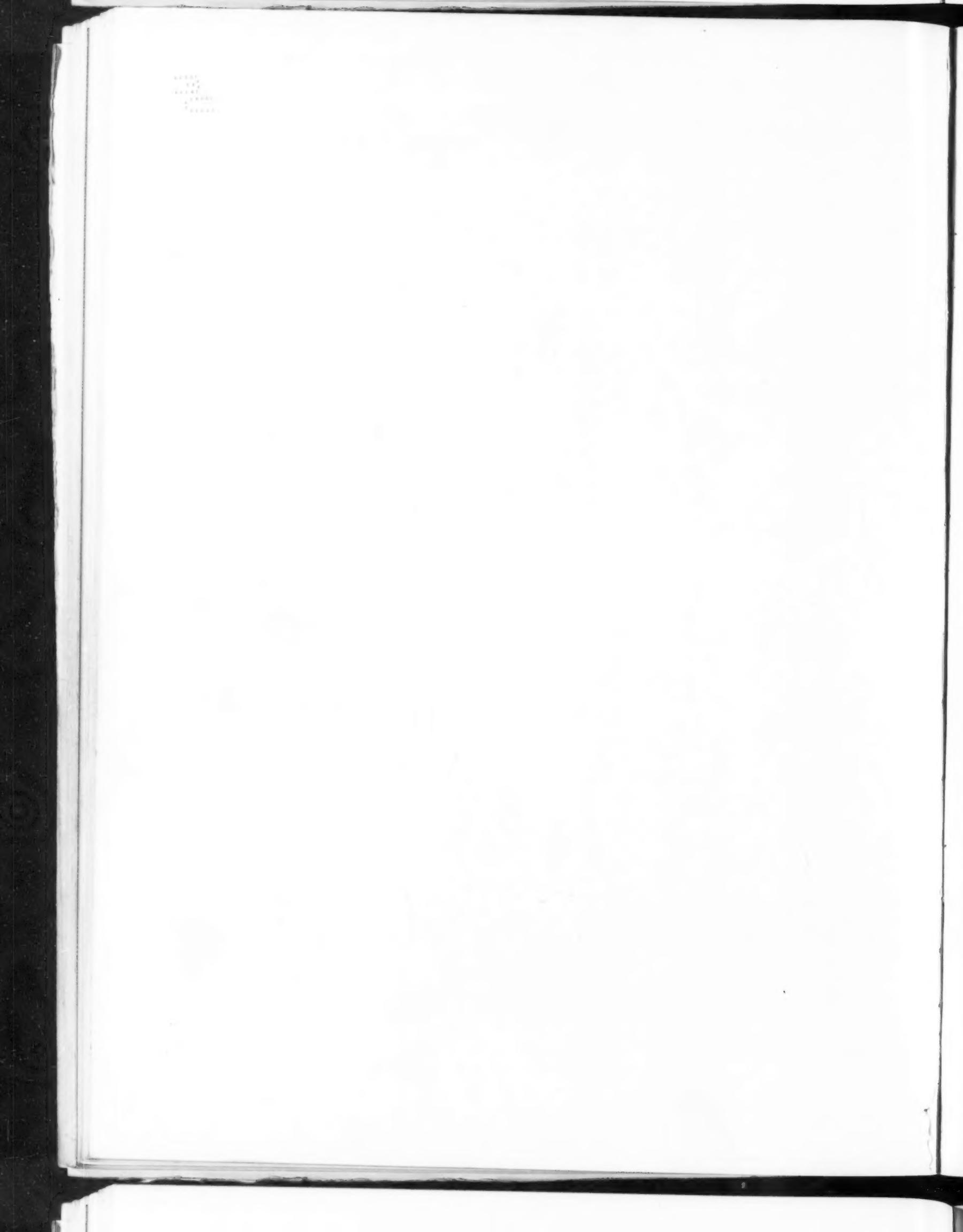
PLATE 54



TWO VIEWS OF GUEST COTTAGE

"YORK HALL," HOUSE OF CAPTAIN GEORGE P. BLOW, YORKTOWN, VA.

GRIFFIN & WYNKOOP, ARCHITECTS OF RESTORATION



✓ Practical Points in Hotel Planning

By DANIEL P. RITCHIEY
Specialist in Hotel Planning and Management

THIS is the third of a series of special articles written by members of the Consultation Committee of THE ARCHITECTURAL FORUM. Mr. Ritchey is the committee member on Hotel Planning and Equipment. Educated as an architect and engineer, he early became interested in the hotel field. He has acted as consultant in the designing and equipment of many hotels and as owner or manager has been in direct charge of the operation of many others in this country. He has also acted as special adviser and as an expert in legal cases involving direct knowledge of hotel operation problems. He is, therefore, particularly well fitted to discuss the subject of this article. Obviously all subjects pertaining to hotel design cannot be discussed within the limits of one article, and Mr. Ritchey will accordingly answer questions on any points not touched upon here.—THE EDITOR.

ARCHITECTS who have been called upon to solve the problem of planning modern hotels realize fully that this is one of the most complex building operations which confronts the profession today. A modern hotel presents in effect a housing problem which is complicated by the transitory nature of its tenancy, wherein the maximum of comfort, convenience and economy is demanded for the short period during which the individual tenant occupies the premises. Hotel planning, unlike any other problem of residential construction, calls for design and equipment to meet the varying demands of the traveling public. It can be built around no individual need but must meet the requirements of every one of the general class of persons who may be expected as guests. In addition to this and equally affecting design, the hotel must be a paying business machine, because it is not built as a speculative venture but as an investment, providing generous returns to stockholders.

Several general developments have taken place within recent years which directly affect the design of the average hotel; of these, prohibition is the most obvious. In years past the hotel owner depended to a great extent on the returns from the bar business to offset a large proportion of his maintenance costs. In many cases the bar returns represented the actual net profit of the business. As evidence of this condition may be noted the recent statement by Mr. Statler that the investment in the Pennsylvania Hotel would have been reduced two or three million dollars if it had been known that prohibition was to become effective. This means that there would have been a definite cutting down of space allowed to bar rooms, grills and sections of the hotel devoted to public entertainment. Naturally, the hotel owner has been forced to seek other channels of revenue to assist in meeting his overhead costs. We find, therefore, that the average hotel problem involves the question of maximum returns from room rentals, the operation of the restaurant on a paying basis, and the development of all possible additional channels of revenue, such as store rentals and returns from concessions.

The position of the main floor with respect to street grade is an important consideration from the operating standpoint, particularly today with the store problem so prominent a feature. Wherever possible the entrance should be on the street level. It is an established fact that hotel guests do not like to climb stairs, and I have noted many instances where the provision of stairs leading up to a lobby has acted detrimentally to the success of the hotel. We may note here that in many of the large hotels the main floors have been remodeled to provide unusually good store facilities, such as in the remodeling of the Hotel Astor in New York, where an unusually clever scheme has been adopted to overcome what at first might appear to be unfavorable floor levels. The additional space for these stores, which will yield a revenue of \$200,000 a year, was obtained by inserting what amounts to a new floor between the old first and second floors, with a plan practically identical with the former first floor plan. The level of the former lobby was about three feet above the grade and the new floor for the stores was put in at grade level; to gain the necessary height of ten feet, about seven feet was taken out of the height of the dining rooms on each end of the building, and similarly three feet was taken out of the height of the grill room in the basement by means of a rearrangement of ventilating ducts formerly occupying this space. A new arrangement of the stairs leading to the old mezzanine floor was made so that large landings were created on the new level of the dining rooms, and additional stairs were installed to give access to these landings from two directions. Below these landings octagonal shaped store lobbies were created with a display window arranged for each of the shops. This gives each of the stores display both on the street and in the hotel lobby. To preserve the dignity of the hotel facade the show windows do not project; they are framed in heavy stone architraves and display signs are limited to recessed panels over the windows which are lighted at night.

Before entering upon the discussion of definite points in connection with hotel design and equipment, it is important that we establish two premises. The first of these is the somewhat startling fact that architects to some degree are responsible for many hotel failures; and second, that the first and most important practical point is the importance of working in co-operation with the prospective manager of the hotel during the planning period.

The outstanding features of poor planning which are noticeable in practically any hotel may involve some of these points:

1. Too much space allowed for public use, providing no direct financial return.

2. A poor arrangement of service features, particularly with respect to restaurant service, which adds greatly to cost of operation.
3. Waste of space in the design and arrangement of bedrooms and halls.
4. Too great an investment in mechanical equipment.
5. The use of poor mechanical equipment and interior finish, which results in rapid deterioration and high replacement cost.

These and other features which will be discussed later represent the defects in planning which are primarily the fault of the architect. The important question, therefore, is *Why have there been so many errors made in hotel planning?* To my mind the answer is to be found in the failure of the architect to work in close touch with a practical hotel manager. I believe that the public generally expects too much from the architect; he is expected to know all the details of hotel operation and the operation of other types of buildings, and to thoroughly digest the client's business requirements which must be met in designing a building. To be familiar with all the details of the modern complex building operation would require a superman or an unusually large organization which the average architect cannot be expected to maintain, as the demand is not steady or in any way to be measured. Consequently, in my opinion, the function of the architect today is to thoroughly understand his business which is that of building design and construction and to bring into contact with his problem on its special phases those whose specialized knowledge must make for the success of the project in hand. The man upon whom the making or breaking of a hotel venture depends almost entirely is the manager. Therefore, to design a hotel without meeting the practical requirements of the manager constitutes a serious error and one which may doom the project to failure even before the books are open for registration.

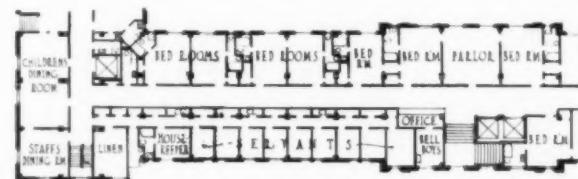
Selecting the Hotel Site

In selecting the site it is important that it be as near the railroad station as possible. This has always proved to be a more successful location than a distant site, because it represents a saving on baggage transportation and taxi fare and also provides easy accessibility to departing trains when the guest is leaving. The hotel should also be located close to or in the retail and general business section of the city in order to provide convenience for guests

and a practical location for traveling salesmen and business men. In any event, the hotel should be located at a point where retail stores can be incorporated in the design. It is better to pay a higher price for the land if necessary in order that this can be done. A new maxim in the hotel business is that store rentals must carry the total cost of the main floor.

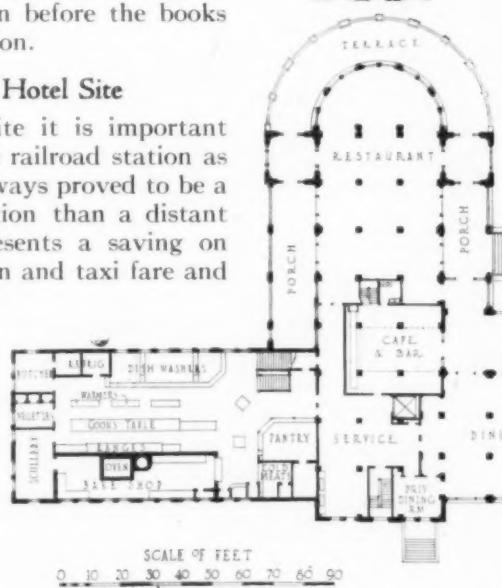
Too much stress cannot be placed upon the importance of the preliminary detailed analysis as to the purpose of the hotel and its relation to the needs, not only of the traveling public, but of the community which it serves. Since the coming of prohibition, hotel owners are not particularly anxious to have banquet work or to provide general convention or meeting space. There is not a sufficient return from this activity to invite the necessary additional investment. It is not considered wise, as a general rule, to attempt to include in a hotel space for community activities of any nature, although some elastic scheme for co-operation with an adjoining building which may be designed in connection with the hotel is desirable.

In this connection we may note the Hotel Du Pont at Wilmington. This is an unusually interesting structure in that an entire block is built up, one-half as a hotel and one-half as an office building. In designing these two structures, however, the same floor levels were established and hall lines were connected, so that either building could expand into the other, depending upon the demand. As it happens, this hotel has been quite successful, and by cutting through the party walls a considerable amount of the office space of the adjoining building has been taken for use as hotel rooms.

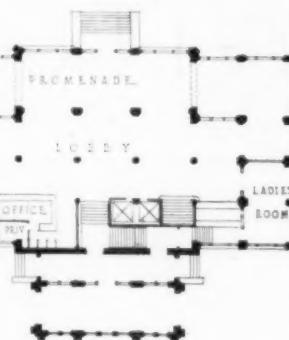


Portion of Second Floor Plan Showing Sleeping Rooms of Help

Hotel Galves, Galveston, Texas
Mauran, Russell & Crowell, Architects



Portion of First Floor Plan Showing Office and Service Features



Laying Out the Main Floor

In view of facts already outlined in preceding paragraphs, it becomes evident that one of the important problems in hotel design is the layout of the main floor. The more important objectives in designing this layout are:

1. Convenient entrance for guests and easy access to registration desk.
2. Concentration of registry and room service departments.
3. Minimizing of public space.
4. Provision of maximum store and concession (income) space.
5. Practical arrangement of mezzanine and restaurant features.

In the average hotel there should be one main entrance which is directly in view of the registry desk. It is important also to introduce a side or private entrance at some point for women and residents of the hotel who do not wish to pass in and out through the main entrance and lobby. The elevators should be concentrated at one or two points directly in view of the room service department, so that incoming and departing guests will be easily under observation. The service entrance should be placed as far as possible from the main entrance and should be out of sight, on a side street or an alley if at all possible. This question of the service entrance is one which as a rule is not thoroughly analyzed. We may note, for example, one large hotel in New York where for some reason the service entrance was placed on the chief thoroughfare and the main entrance on the side street, probably through a misconception which did not take into consideration many features involved in the use of the service entrance, such as the delivery of unwieldy packages and the handling of deliveries of all kinds. In addition to the main lobby and the guests' service department, the balance of the main floor should consist of space given over to stores and concessions. Income may be derived from a space in the main floor of the hotel, first by the provision of stores, preferably having show windows on the street and in the lobby and from space for concessions such as cigar and news stands and space for the sale of flowers, theater tickets and similar wares. The use of any section of the main floor for a restaurant will as a rule prove a poor investment.

The mezzanine idea has now been developed and perfected to a point where such features as lounge, writing room, grills and even kitchens can be placed on mezzanine floors. The plan can be so arranged that the front section of the mezzanine can be used

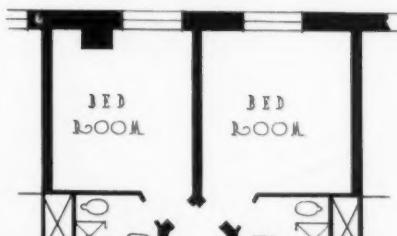
for a lounge or restaurant, giving street exposure without the overhead cost of using street level frontage which should be used for stores. The arrangement of lounge, writing rooms and similar features on the mezzanine has a tendency to discourage the use of these rooms by the general public. The mezzanine thus becomes the center of general activity and avoids the confusion usual on the main lobby floor, a feature which is noticeable in many of the larger hotels and interferes considerably with incoming and outgoing guests. The placing of the kitchen and restaurant on the mezzanine floor has the advantage of providing rapid access from one to the other and avoids the necessity of elevators and stairs which must be used by waiters. This feature is particularly important today when women are

being employed more extensively than ever before in restaurant and kitchen service. It is also found that by the concentration of kitchen and restaurant features, much better and quicker service can be provided for patrons and a reduction in the equipment of the kitchen results from arrangement of such quick service features.

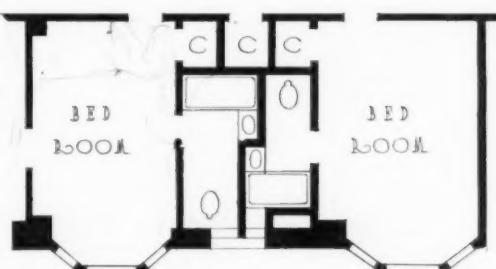
Importance of Good Interior Construction

At this point it may be well to give brief consideration to the question of the interior construction, decoration and furnishing. An architect who is somewhat of a philosopher recently said to me, "Doesn't it seem strange to you that today we build our exteriors to last a hundred years or more, when the interiors are

constructed for a life of but 15 or 20 years?" This remark is particularly apropos of the average hotel. One of the greatest annoyances of the hotel manager is replacement cost, and in many instances this replacement cost comes within a short period after the hotel is constructed and is due to the use of inferior qualities of trim, decoration and everything else along the line, including mechanical equipment. The best available interior trim should be used and the best possible plastering should be secured. Poor plaster has been the bane of hotel men. Not only has it resulted in high replacement cost but in many cases the use of cheap plaster has destroyed one layer after another of wall paper through discoloration. The use of wall paper as opposed to painted surfaces, for the guest rooms, has for many years been a bone of contention among hotel men. Both methods have distinct advantages, the painted surface being sanitary and subject to practical treatment. On the other hand, a well chosen design in wall paper has a certain value



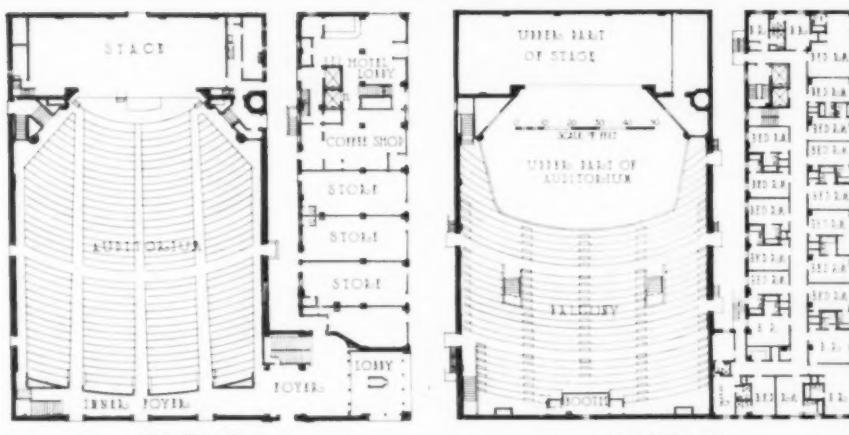
Two-room Unit with Interior Bathrooms and Minimum Entry



Two-room Unit with Exterior Bathrooms Reduced in Area by Interlocking Partition



General Exterior View



Victory Theater and Sonntag Hotel, Evansville, Ind.
J. E. O. Pridmore, Architect

in furnishing hotel rooms, the best of which are bare enough. On the matter of renewal, it has been my experience that both surface treatments require renewal at equal intervals.

The general question of furnishing and decorating is one which is more and more coming under the control of the architect. I find that in many instances special lobby furniture is designed by architects and furnishing and decoration contracts for hotels are often being handled upon a contract basis from general designs developed by the architects. I believe this is a very satisfactory arrangement as it is possible for the architect to provide a harmonious, finished result for the interiors of the main rooms of a hotel by maintaining direct control of furnishing and decoration. Naturally, there is a tendency toward simplicity, and the average hotel today represents a much higher order of taste in furnishing than ever before. While it is not true that room sizes are determined entirely by furnishing, it is true that one of the first activities in

the advice of experts. There are several large organizations which specialize in this type of work and have developed kitchen layouts on a scientific basis.

It is remarkable how many miles of walking may be saved in a comparatively small but well planned kitchen today. In connection with this article there are presented two illustrations taken from the plans of the Hotel Galves at Galveston, Texas. The arrangement of the kitchen in this hotel is designed to save as much space and labor as possible where extensive service is required. A study of this plan will show various features well recommended. It will be noted that the heat of the oven and stack is centralized; that the scullery is placed in a position of convenience to give efficient service, and that the department of cold foods and hot beverages such as coffee, tea, etc., is convenient to the entrance so that the waiters may pick up anything required in this line without interfering with the order service division. It is difficult to show the entire main

designing a hotel is to work out the practical furnishing of the average room, not only as to the pieces which will be installed and the size of these pieces, but as to their actual locations in the rooms, because this will to a certain extent determine the placing of the lighting fixtures and the arrangement of fenestration.

The Arrangement of Service Features

There is practically no limit to the detailed discussion which might be developed upon this subject. For the purpose of this article, however, it is possible only to point out a few definite features. We have already made mention of the importance of having the kitchen on the same floor level as the rooms in which restaurant service is intended. During the past few years great progress has been made in the matter of kitchen equipment; the problem of help has rendered it necessary to utilize every possible labor-saving device, and the cost of building has made it imperative to limit the space used for kitchen and service purposes. In regard to kitchen equipment, architects will naturally seek

floor plan of this hotel at adequate scale because of its size, but the accompanying portion shows the method of providing entrances and in centralizing the guests' service features, including registration, cashier, manager's office, bellboys and a checking room which serves both as a general check room and for the dining room. It will be noted that guests approaching the elevators or entrances are within sight of the desk. The service section of this building is concentrated in one corner, with the kitchen service room and the main dining room close together. On the next floor and directly above this section will be found the children's dining room, officers' dining room and sleeping quarters for employes. A row of bedrooms for servants will be noted as entirely hidden by a wall along the corridors against which the lockers have been installed. The passageway to these bedrooms leads past the housekeeper's office so that a check can be easily kept. The location of the servants' quarters at this point was made to form a screen to the service entrance directly below, and no guest room overlooks this entrance at a point low enough for it to be annoying.

Naturally, the service features should occupy the least valuable space in the hotel and should be screened as far as possible. All disagreeable features of service should be grouped at one remote point. One important hotel in New York has its coal chute directly in front of the main entrance so that incoming coal and outgoing ashes are almost always in sight of arriving guests and also interfere with traffic at that point. Many other instances might be given of bad results caused by lack of study.

The Practical Layout of a Room Floor

The average practical size of a hotel room is 10 x 14 and the width of corridors 7 feet, although 6 feet is acceptable. The problem is to obtain the maximum of light and ventilation and to utilize every square foot. This immediately involves the question of the location of baths, as it is assumed that each room will have a bath. On the location of baths hotel men differ considerably. My own experience leads me to view the outside bath favorably. In the typical layout with inside baths it is necessary to give up a certain amount of space to a small entrance hall in each room. This space has no practical value as it is never used except to pass in or out of the room. It represents a considerable portion of the total floor space, however, and bears its quota of overhead cost in cleaning and maintenance, and as a rule it must be lighted. The inside bath requires constant lighting while in use, and as a matter of fact lights are usually left turned on and burn most of the day, so that there is not only a consumption of electric current but the heat generated in this way which is not negligible. Guests invariably prefer the outside bathroom in which daylight is available and ventilation seems better. Two room plans are shown herewith which indicate economical layouts, one with outside bath

and the other with inside bath. The outside scheme is worked out by an interlocking design which minimizes the space occupied and permits a square room and better placing of furniture. This arrangement allows ample closet space in each room, which is highly important. Many hotels have been built with little or no closet space and this has always proven an objectionable feature and one on which many complaints are made by guests.

Mechanical Equipment

The mechanical equipment of a hotel building is of the utmost importance and in most cases entails employment of engineering service to make certain that layouts are correct and that the equipment selected is dependable. As said already elevators should be placed within the sight of the desk. The location of elevator and stair shafts should be carefully studied in order that the noise of this service shall interfere with the quiet of as few rooms as possible. In one exclusive hotel in New York there were seven elevators installed, located in seven different points throughout the building. Each of these elevators passes a room on each side at each floor and each trip of each elevator disturbs to a greater or less extent the occupants of these rooms. To make this condition worse, the elevator installation is of the type in which cables pass over to shafts on the other side of the building and the noise of the cables in these shafts disturbs another quota of rooms. This installation has been very detrimental to the business of the hotel, as guests insist on avoiding occupancy of these rooms whenever possible or complain strenuously because of the noise. To a lesser extent this condition is to be found in many hotels, and it is a feature which is worthy of careful study on the part of the architect.

The plumbing installation is the most particular part of hotel design. Attempts to conserve expenditure by the use of inferior plumbing have resulted in high replacement costs in many hotels. Pipes buried in walls form a constant menace, rusting out within 15 or 20 years. It is a common experience and a great problem for many hotel men. All plumbing should be accessible in shafts and in some locations it is not particularly objectionable to have exposed plumbing on the ceiling as the parts can be nickelized and are made easily accessible. It is therefore apparent that the first investment in the best available plumbing installation is wise and will be repaid many times as the building grows older.

Unfortunately, in many instances engineers called in to give special advice on mechanical installation are inclined to overdo and to provide too many precautions. For instance, I believe that a reserve installation for heating or hot water which is provided against breakdown service is unnecessary, although it is often specified. In the average city the replacement of parts is simple because of the development of standardization. The excess machinery provided in a reserve installation not only adds to the original cost but adds materially to the cost

of upkeep. It is also noted that at times the operating engineer who has any tendency toward neglect will depend upon the reserve system and he will allow trifles to develop into large repairs because there is no danger of delay or interruption of service. There is also a tendency to utilize both systems in alternating times so that there is practically a double cost of maintenance. These facts apply to the power and lighting plants, and the hot water heating system and refrigeration systems.

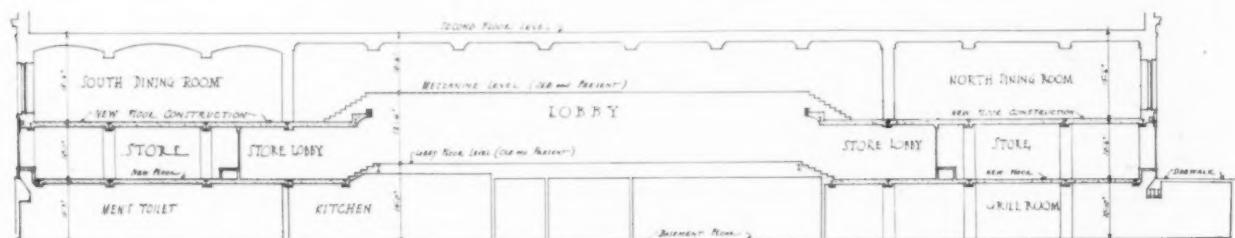
The question of the isolated plant as opposed to central power station service is one which must be determined in accordance with local conditions and usually is decided by the cost of power.

In writing this article, I have been constantly confronted by the temptation to go into detail much farther than either time or editorial space would allow. Naturally, there are many questions in which many architects are interested which have not been touched upon, but an attempt has been made to indicate some of the evident practical points which from time to time I have found were overlooked in hotels which I have analyzed.

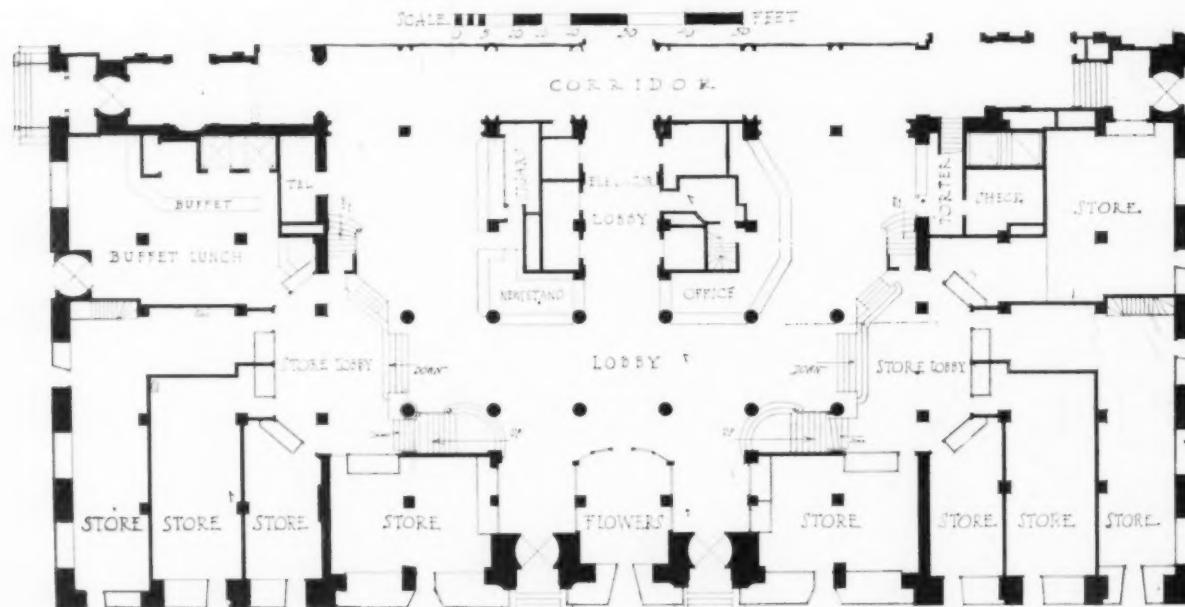
The results of several such analyses, even before

the advent of prohibition, indicate faulty planning as an important element in hotel failures, and a serious handicap in others. While architects may not with full justice be charged with all planning defects, because oftentimes the owners are lax in presenting the requirements of management and operation, the result, nevertheless, is linked up with the architect's reputation, and he should exercise a professional interest to ensure that he is furnished with all necessary data that will affect the plan.

In general and as a concluding thought it may be said that aside from æsthetic features, hotel design today is essentially a matter of common sense study of the requirements of the business. Not long ago a great railroad engineer said that engineering is 90 per cent common sense and that a man who possessed common sense is 90 per cent an engineer. This statement applies equally well to the question of hotel design. Architects who undertake hotel projects must realize the complexity and the responsibility involved, and they must be ready to undertake a comprehensive survey of the many available materials, devices and items of equipment which are offered in this field today.



Longitudinal Section Showing New Arrangement of Floor Levels



First Floor Plan and Section Showing Addition of Stores, Hotel Astor, New York

Peabody, Wilson & Brown, Architects for Alterations

ENGINEERING DEPARTMENT

Charles A. Whittemore, Associate Editor

Systems for Building Heating and Domestic Hot Water Supply

By JAMES A. McHOLLAN, Vice-president,
The R. P. Bolton Company, Consulting Engineers

INFORMATION is presented in this article upon matters of interest to architects in the selection and installation of systems for heating and for domestic hot water supply in modern structures. Investment and operating costs are also considered with special attention to the progress which is being made in the use of gas for providing power for these services.

Installation Costs of Heating Systems

It is always of interest to review current costs of installing heating equipment and this schedule, obtained from actual contracts recently awarded, may be of interest in preliminary estimates of the cost of proposed work:

Type of building	Total radiation installed	Number of radiators	Cost of complete system, boilers, piping, valves, covering, etc., per sq. ft. of radiation installed	Type of system
Apartment	9,100	342	\$2.48	Vacuum
Residence	2,500	45	2.48	Hot water
Apartment	7,000	250	2.10	One-pipe steam
Institution	4,879	173	2.04	One-pipe steam

SELECTION OF STEAM HEATING SYSTEMS—The two-pipe vacuum or vapor heating system costs about 10% more than a two-pipe and about 20% more than a one-pipe gravity steam system. The improved operation obtained with the vacuum apparatus justifies the extra investment and an architect need not hesitate in adopting this type, notwithstanding the higher first cost. It is more economical in operation; circulation of steam is obtained in less time with lower steam pressure, and the heating results are invariably more positive and satisfactory. If the funds available for the construction of a building preclude the extra investment for the vacuum system, the one-pipe gravity return is the type to install. The two-pipe gravity system should not be considered. It is almost as expensive as the two-pipe vacuum or vapor systems and is no better in operation than the cheaper one-pipe arrangement. The piping layout for a vacuum plant may not differ from that for steam, but devices for eliminating the air in the system are the addition that allows the proper passage of vapor at lowest pressures.

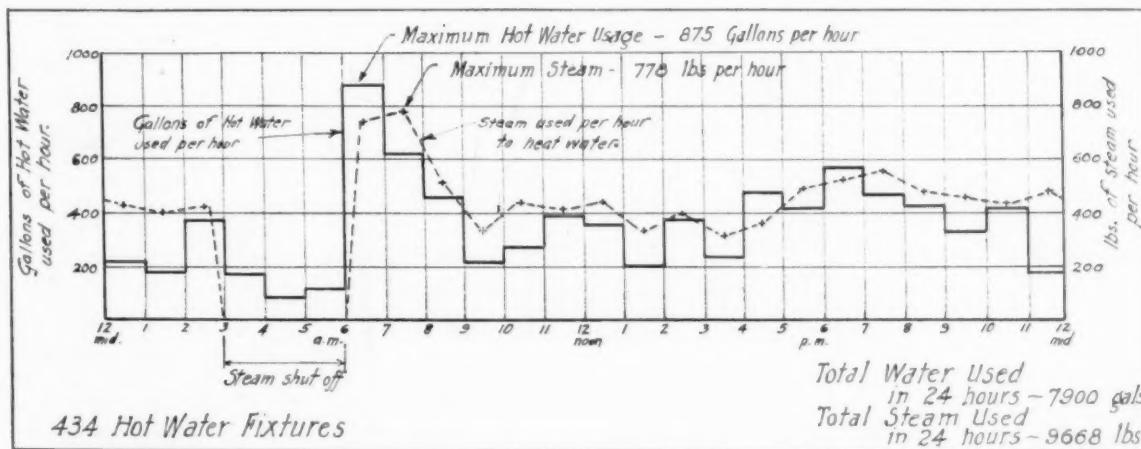


Diagram I

Graph Showing Twenty-four Hours' Operation of Hot Water Supply System for Domestic Service in a Twenty-five-story Office Building

HOT WATER SYSTEMS—These systems usually cost about 20% more than a vacuum or vapor system, but it is now becoming known that the fuel used in operation is much less than for steam heated radiators. Experiments conducted in a number of buildings equipped with hot water radiators show a saving of about 25% in fuel as compared with buildings of equal size having steam heated radiators. Figures showing the amount of gas used in several steam and hot water installations will be presented later which show a decided saving in fuel in favor of the hot water systems. With regard to the advantages claimed for hot water heated radiators, of flexibility of temperature control, even temperature in moderate weather and the more agreeable heating effect obtained with temperatures of less than 200° in the radiators, the writer's opinion is that a well designed vapor system will provide equally satisfactory service. The greater fuel economy obtained, however, is a matter of great interest. The larger manufacturers of heating boilers are conducting tests in this direction and the engineering departments of several gas-supply companies, whose interest lies in increasing the use of gas for heating and demonstrating lower costs for heating by gas as compared with coal, have already confirmed this saving of 25% in fuel by the use of gas.

CHIMNEYS—The size of chimney in a new building is a question which arises when preliminary sketches are made. If shown too large or too small, an error in size is apt to invite criticism. Here is a rule which is not difficult to apply and it may aid architects in arriving at approximate chimney sizes. The exact diameter should of course be checked by a heating engineer before final plans are prepared:

- (a) Multiply volume of building in cu. ft. by .005
- (b) Multiply area of exposed wall in sq. ft. by .07
- (c) Multiply area of glass in sq. ft. by .3
- (a) + (b) + (c) = "x"

$"x"$	Chimney Height				
	50 ft. or square	60 ft. or square	75 ft. or square	100 ft. or square	125 ft. or square
6,000	25°	23°	22°	21°	
8,000	27°	26°	25°	24°	
10,000	29°	28°	27°	26°	
15,000	36°	35°	33°	31°	
20,000		42°	39°	36°	
25,000			42°	39°	39°
30,000			45°	42°	42°
40,000				48°	48°
50,000				54°	54°
60,000				60°	54°
70,000				66°	60°

COAL STORAGE SPACES IN LARGE BUILDINGS—A question of importance is the size of bunkers which should be allowed for the storage of coal. The writer appreciates the difficulties of an architect in apportioning basement and sub-basement spaces in the plans of a new structure, but coal is an essential commodity in operation and day-to-day

delivery in retail quantities not only increases the cost of the coal but uncertainty as to its arrival causes undue anxiety in severe weather. Fifteen days' storage for winter rate of consumption is the minimum which should be allowed. Thirty days' is better, and if any unused spaces are available in the basement, a connecting doorway or passageway should be constructed so that such space may be used as a reserve bunker if desired. This tabulation shows the maximum coal consumption in cold weather for large buildings, with the storage space recommended.

Type of building	Maximum amount of coal used per day in coldest weather per 1,000,000 cu. ft. of volume	Coal storage space for 15 days' reserve supply per 1,000,000 cu. ft. of volume
Office	4 tons	4,500 cu. ft.
Manufacturing	5 tons	5,200 cu. ft.
Apartment	6 tons	6,700 cu. ft.
Hotel	7 tons	7,800 cu. ft.

BUILDING HEATING BY GAS-FIRED BOILERS—It is of great interest to consider the progress which has been made in the use of gas for operating heating boilers. For residences, office buildings, factories and public buildings of moderate size, the use of gas under properly designed boilers may effect substantial economy over coal when the expenses of attendant labor and ash-removal with the coal-fired boiler are considered.

One of the best known and largest manufacturers of heating apparatus has just placed on the market a gas-fired boiler which is designed to operate at an efficiency under working conditions of practically 90%. This unit is automatically operated, the burning of gas being regulated by the steam pressure or the water temperature, depending on the type of system in use. A secondary, or master, control of gas supply is provided by means of a thermostat placed at a selected point in the building, by which the gas supply can be turned on at a predetermined hour in the morning and turned off in the afternoon or evening. When steam is not being taken from the boiler, a pilot light is burned which consumes not more than 4 cu. ft. of gas per hour. With gas at \$1.25 per 1,000 cu. ft. the operating expense of the pilot light is $\frac{1}{2}$ cent per hour when the boiler is not in active operation.

It will be understood of course that in referring to heating by gas no reference is intended to individual radiators heated by gas since these are seldom used in any permanent building. The chief use of gas is in the operation of heating systems by means of boilers, properly designed to use gas as a fuel and employing the same type of radiators, piping control and valves now in common use with steam and hot water heating apparatus.

COST OF HEATING BY GAS—These figures show the quantities of gas used per heating season for various buildings. The cost of operation by gas may easily be computed for any installation from the price charged by the gas supply companies according to locality:

Type of building*	Sq. ft. of radiation installed	Type of system	Total gas used cu. ft.	Cu. ft. of gas per sq. ft. of radiation
Residence	985	Steam	840,205	853
Loft building 1	1,268	Steam	868,900	685
Loft building	1,264	Steam	766,000	606
Residence	777	Hot water	312,000	403
Residence	840	Hot water	342,720	408

* Buildings located in New York

HOT WATER SUPPLY FOR DOMESTIC SERVICE—

The apparatus used for heating water for domestic service in buildings consists of heating and storage tanks, boilers and the necessary supply, return and circulating systems of piping. Before presenting figures showing how to estimate for the use of hot water in new buildings, the writer wishes to draw attention to the defects in operation which result from corrosion and incrustation of hot water piping. The physical life of this part of hot water installations is seldom more than seven years, and in many buildings it has been necessary to commence the replacement of piping within this period. As most of these pipes are concealed, the replacement is always an expensive and difficult undertaking. Such a weak point in building construction deserves serious attention.

The corroding processes are caused by free dissolved oxygen in the system which enters with the make up water as it is drawn from the street water mains or other outside sources of supply. If this oxygen is eliminated the corroding processes are arrested and the same length of physical life may then be expected as in other materials used in construction of a building. Devices are now manufactured which effectively remove the oxygen by de-activating or de-aerating the water and these should be included in specifications and plans of new hot water supply systems. Everyone who has been concerned in the operation of buildings will realize the importance of thus arresting corrosion and in this way guarding against failure of the hot water piping within a few years of installation.

USAGES OF HOT WATER—In deciding the sizes of heating and storage tanks, the factor which must be taken into account is the maximum hourly usage of hot water. These figures may be used in estimating the maximum rate of hot water usage in several classes of buildings:

Type of building	Maximum hot water used per hour per hot water fixture
Apartment.....	3.0 gallons
Hotel.....	6.0 "
Office.....	2.0 "
Manufacturing.....	4.0 "

With the total number of hot water fixtures known, the maximum amount of water which has to be heated in one hour can be determined. The foregoing rates of hot water usage should be used

with judgment and unless one is experienced in this work it is well to tabulate the different kinds of hot water fixtures in the building being figured, the number of rooms and occupants, the location of the building, the character of occupancy and the class of service, and have the estimate checked by one or other of the manufacturers of hot water storage tanks.

EFFICIENCY OF HOT WATER SUPPLY SYSTEMS—

Diagram I shows a test of a hot water supply system in a large office building. During the test period of 24 hours, there were delivered to the system 65,100 lbs. in the form of "make up" or cold water. This amount was supplied under automatic regulation and represents the consumption of hot water in the building. The steam condensed in the heating coils of the storage tanks for the same period amounted to 9,668 lbs., which included the heat expended in circulation and insulation losses.

The steam required to heat the make up water was approximately 6,320 lbs., leaving a balance of 3,348 lbs. chargeable to the standing losses of the apparatus. Substituting these figures in percentage ratios, the efficiency of the equipment appears to be about 65%. This may be accepted as representative of the typical conditions existing in such buildings, as the installation under consideration is of a workmanlike character and was operated during the observations under excellent fireroom conditions. In view of the lowered efficiency due to circulation and insulation losses, it is important that the highest grades of pipe covering and tank insulation be provided in such systems.

GAS FOR HOT WATER SUPPLY—A test of the cost of gas heating in a 14-story office and printing building showed that $1\frac{1}{2}$ cu. ft. of gas were used per gallon of water heated. This building is equipped with 284 fixtures and the usage of hot water per day is 12,000 gallons.

Operating efficiencies as high as 80% have been obtained in hot water supply systems equipped with gas-fired units in buildings even of large size. Gas is rapidly replacing the use of coal-fired boilers for this service even in the largest buildings. A practical combination where coal-fired boilers are used for building heating is to have these boilers also supply steam for hot water supply during the heating season and in summer to operate the hot water service by means of a gas-fired boiler. This is always productive of economy as the heating boilers can be shut down in summer; no labor is employed and no ashes accumulate for removal.

NOTE. In the January issue of THE FORUM Mr. McHolland will continue the discussion of hot water and its usage and also the determining factors in selecting an efficient system.

—The Editor.

Steel Design for Buildings

PART V. THE GENERAL ARRANGEMENT AND DESIGN OF A BUILDING

By CHARLES L. SHEDD, C.E.

In designing the steel frame for a building, the engineer is first called upon to consult with the architect as to the arrangement of the columns. It is best that these should be spaced as regularly as possible and rather less than 20 feet, center to center. The architectural design of the lower floors often limits this arrangement and it is best to have as many columns as possible continuous from the foundation to the roof. When columns are cut off at one of the lower levels the load must be transferred by girders to other columns which can extend through the lower stories, and this sort of construction is expensive, besides making the building as a whole less rigid and more subject to vibration from the wind or other causes.

It is not necessary that the columns line up with each other in both directions, but if they can be so

to be stiff enough to resist the bending which they may be called upon to withstand.

When the columns are spaced opposite each other in each direction and floor beams are used it is best to make a design for a typical bay with the girder beams in one direction and another for those in the opposite direction, and compare the weights of the steel required to obtain the most economical design. This weight can be best obtained as so many pounds per square foot. Divide the weight of the floor beams per lineal foot by their spacing on centers and treat the girder beams in the same way, adding these two amounts together to get the total weight per square foot. This of course does not consider connections or tie rods but these may be disregarded in the comparison without changing the result obtained,

Having determined on the arrangement of the beams it next becomes important to determine which way the columns shall be turned. Plate and angle or H column sections are used to illustrate this in Fig. 1, but the analysis would be the same if plate and channel columns were used. The column is weakest about the axis parallel to the web and if this were the only consideration we would place the columns with their webs parallel to the floor beams in the opposite direction from that shown in the illustration, as the girder beams are deeper than the floor beams as a rule and would brace the column better. This difference in depth is, however, small in relation to the story height and other and more important considerations actually determine which way the columns should be turned. These considerations are the design of the detail where the beams connect to the columns and facility in erecting the structure. Where double beams, as for example the two 15" Is 60# shown in Fig. 1, frame into the column forming the girder beam it is usually much easier to connect them to the column properly if they frame into the flange side of the column than otherwise. The girder beams, too, are heavier than the floor beams and in swinging them into place it is much easier to have them frame into the flange sides of the columns leaving the lighter floor beams to be framed into the web. It sometimes happens, when the columns are small such as 8" webs, that the flange of a large girder beam, especially the Bethlehem shapes, could not be framed into the web of the column without notching the flanges; such a method means of course added expense and in addition allows less space to work in during erection.

With the exterior column another problem is encountered. Besides turning the column one way or the other, we have to locate the spandrel beams both horizontally and vertically. The column is placed back from the face of the wall some little

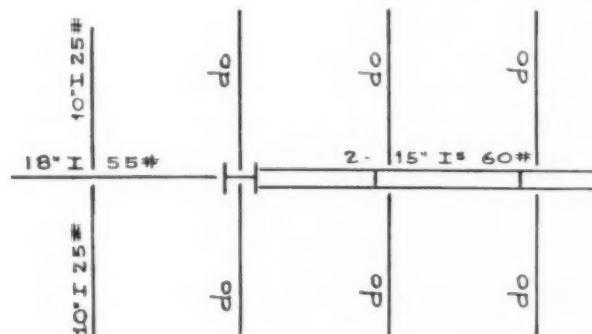


Fig. 1

arranged without inconvenience much better results may be obtained. It is however highly desirable that they line up in at least one direction. When they line up only in one direction the girder beams should extend between the columns along these lines and the floor beams or other floor construction, such as a combination floor, extend crosswise in the opposite direction. It is not necessary that there be a cross beam on each column center in the opposite direction although this adds to the rigidity of the building. Usually floor beams spaced 5' or 6' on centers will be near enough to any column to brace it sidewise, any lateral stress being carried to the floor beam by the resistance to bending sidewise exerted by the girder beams. When a combination or other long span construction requiring no floor beams is used, small ties or bracing beams should be placed in the opposite direction to the girder beams on the column centers. A 6" beam is about the smallest desirable size for this purpose. Very little if any stiffness is added to the column by the angles which tie the building together for erection purposes because they in themselves offer slight resistance to bending. The connections to the column also are less likely

distance to allow sufficient covering for fire-and weather-proofing and the beams must be located as far out as practical to carry the wall itself properly. Both the beams and the columns, then, must be located horizontally independent of each other and their resultant positions bear little or no definite relation the one to the other. Vertically, the spandrel beams are dependent for their location on the limitations of the proper design of the connections to the columns. On the side of the building parallel to the floor beams the spandrel could be dropped to come just above the windows if it were not for the connections to the column. If the

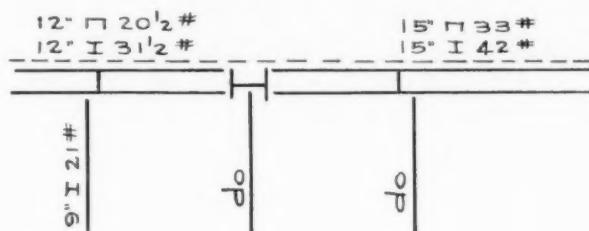


Fig. 2

beams were dropped to this position a channel would have to be placed just inside the wall at the floor level to carry the floor load. These channels would then come quite near to the spandrels in elevation and would interfere with each other in making the connections as well as reducing the rigidity and strength. The top of the spandrels would come at about the same level as the bottoms of the channels carrying the floors. On the side of the building parallel to the girder beams the floor beams would come in above the spandrels making awkward beam to beam connections. In any case, more material would be used especially where the floor beams were parallel to the spandrels. It is always a safe rule to assume that when a load is to be carried it is economical to carry it by as few beams as possible. It is therefore desirable that the spandrels be placed as nearly flush on bottom with the floor beams as practicable after considering in conjunction with the steel the detail of any stone cornices or other structural feature. With the increased use of artificial stone it is much easier than formerly with natural stone to so shape the pieces as to adapt them to the requirements of the steel. Angles can be placed on the outside of the spandrels to fit in the joints of the stone and by balancing the masonry to allow little or no work for the rods which are used to tie the stones in place. An I beam and channel, where the channel is placed on the outside with its flanges turned in toward the I beam, forms a convenient design for most spandrel sections. By turning the channel in this way it is possible to place separators between the webs which will cause them to share the duty of carrying the loads from the walls and floor. By placing the spandrels at the same level as the floor beams a little masonry is left over the windows below which must be carried in some other way. This can be done

by a few loose lintel angles extending over and resting about 6" on the masonry on either side of the window.

In Fig. 2 is shown an exterior column with spandrels and floor beams. The column is turned with the web parallel to the wall to allow the framing of the spandrel beams to the flanges of the column. In this way they may be carried by a shelf angle with stiffener angles under it riveted to a gusset plate on the face of the column. The spandrels may be carried conveniently regardless of the eccentricity provided the column is designed for the eccentric loading and a floor beam is framed into

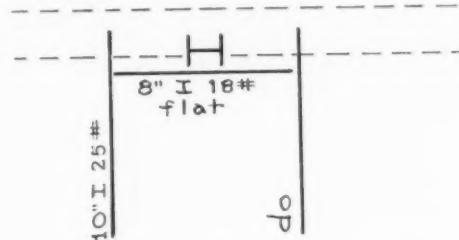


Fig. 3

the column to tie it back into the building. Here we have an instance where the top and bottom angles used for connecting the beam to the column are much superior to a web connection on the beam. These seat angles on the floor beam make a stiff connection, usually limited in strength by the rivets, provided thick enough angles are used to resist the stress tending to straighten the angle between the rivets in the two legs. It is of course impossible to frame both sets of spandrels into the flanges of the column at the corners of the building. These columns should be turned so that the larger beams may frame into the flange unless it is found that one set of beams is located in such a way as to make it possible to frame them more conveniently into the web than the other set of spandrels.

At the first floor or basement (where there is a sub-basement) it is often customary to allow the beams to rest directly on the wall in order to economize on the size of the column even though the column extend down to the footing below the lowest floor. If this is the case, the column is not supported laterally in either direction by steel. Masonry cannot be calculated to brace the column in this way due to the difference in the moduli of elasticity. In order to brace the column economically at these levels the designer may place a small beam flat between two floor beams as shown in Fig. 3, connecting it by clip angles to the column. This arrangement braces the column efficiently in both directions. The 8" beam may be placed with the web coincident with the center of the web of the floor beam allowing a standard web connection to be used on either side, and not necessitating the coping of either beam.

The so-called flat roof of an office building or similar structure usually has a slope of from $\frac{1}{2}$ " to $\frac{3}{4}$ " per foot which makes the grades of the roof

vary considerably from the high points to the lowest. If the roof beams were framed level this would necessitate a large fill where the high points of the roof occur. This fill, besides costing in itself an appreciable amount, adds to the dead load to be carried by the steel work and therefore to its cost. It is the best practice to slope the beams in such a way as to reduce the fill to the minimum. When a beam crosses a valley a line directly over the beam on the roof will slope at one end while at the other

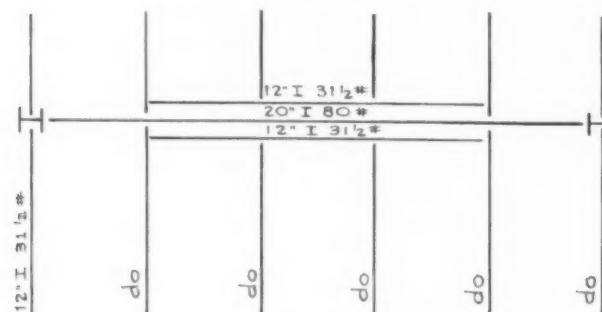


Fig. 4

end of the beam the roof will be level directly over it. The manner in which the beam should slope is determined by that part of the roof which is over the greater part of the beam. If the beam is principally under the slope we should slope the beam, but if under the level part the beam should be level. In a bay where the high point is on two sides and the low point at the opposite corner, if the valley extends diagonally across the bay, the beams on the high side would be level and after passing the center of the bay the beams would all be sloping.

Penthouses around elevator shafts often extend a considerable distance above the roof and when this is done it is frequently advisable to extend the entire column nearest the elevator up far enough to carry the sheave beams. As the elevators are frequently along one of the outer walls of the building and as the greatest part of the elevator load is carried to the rear of the elevator shaft, this brings the larger part of the elevator load directly on the columns.

Girder beams are frequently limited in depth so that two beams are required. When the load is greater on one side than on the other one beam will get more than half of the load unless some means is provided to equalize the load. Separators are used for this purpose, but the ordinary cast iron separator is not capable of transferring any great amount of the load. Riveted separators are expensive, and they too have their limitations. The author has used a scheme illustrated in Fig. 4 to carry the load without the use of any separators at all. If the span of the floor beams on each side of the girder were the same, the two beams could be used as a girder beam and separators would be only necessary to transfer any small inequality which might exist in the actual live load. However, if the

spans of the floor beams on either side of the girder beams were unequal there would be a great advantage in this plan.

Let us investigate a specific case to find the relative amount of steel used. For the sake of simplicity let us assume the lengths of the floor beams are alike, using 20' 0". We will space them 5' 0" on centers and use a total load of 170# per square foot. If a double girder beam were used it would have consisted of two 20" Is 65# and the floor beams would all be 12" Is 31 1/2#. If we use the arrangement shown in Fig. 4 the girder beam would be a 20" I 80# with two 12" Is 31 1/2# for headers and the floor beams would remain unchanged. It is best to keep the header beams far enough away from the girder beam so that standard connections may be used. This would have to be about 11". The farther these are kept apart the greater the chance that the floor beams into which the headers frame may have to be increased. Assuming that the weight of the floor beams remains unchanged, which is neglecting the fact that two on each side are shorter than before and two slightly longer, we can compare the weight of the double girder beams against the weight of the single girder beam and headers.

The two girder beams would have weighed 3,250, neglecting the cut-off at the columns, while the single girder beam with headers would weigh but 2,937, which gives an actual saving in the plan shown in Fig. 4 besides getting a better design for the distribution of the loads in a more certain manner. If the building law allowed a large reduction in the live load on girder beams carrying a large area of floor or if the size of the floor beams had been barely large enough, this difference might have been less or the comparison might even have been reversed.

Sometimes there is a portion of a building where it is desired that the floor shall be as thin as possible. A plan which can be used to keep this thin is indicated in Fig. 5. It is best, however, on account of deflection to limit the depth of the beams to not less than 1/24 of their span.

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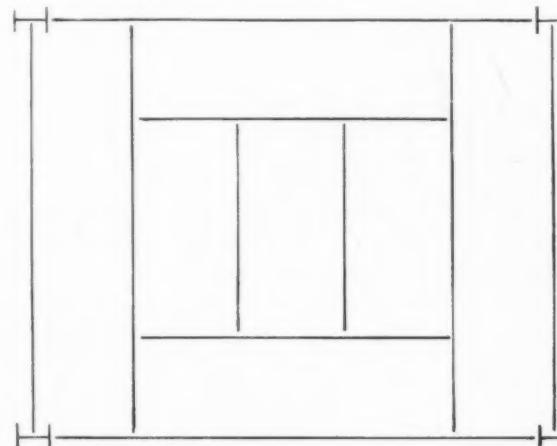


Fig. 5

BUSINESS & FINANCE

C. Stanley Taylor, Associate Editor

Straight Talks to Architects

IV. MANUFACTURERS' LITERATURE—DO YOU FILE IT IN THE WASTE BASKET?

WASTE in Advertising" was the subject at a meeting of the American Institute of Architects held in Indianapolis on November 10. Representatives of a number of large manufacturers in the building field were present at this meeting. The discussion centered around the question of manufacturers' literature, which constitutes the bulk of mail received daily in every architectural office in the country. Interesting addresses were made representing the viewpoints of both architect and manufacturer.

For the last two years, and particularly during the year 1921, the staff of THE ARCHITECTURAL FORUM has been giving serious consideration to the possibility of closer co-operation on the part of architects and manufacturers. Three of the important subjects under consideration have been, first, the question of waste in advertising literature sent out by manufacturers; second, the failure of many architects to make the most of the service represented by the information conveyed in such circulars and catalogs, and third, the question of the practical value and ethics of using specific engineering service made available to architects by manufacturers, particularly in the line of mechanical equipment for buildings of every type.

We are all familiar with the amount of printed matter which is received constantly in the architect's mail. It arrives in every form known to the advertising and printing crafts. The sizes of circulars and catalogs vary from postal cards to attractively printed and illustrated catalogs, which in some instances cost from \$6 to \$8 each. It would take all the time of two or three high salaried men to read and assimilate the information coming through this channel into a large architectural office. It is therefore apparent that in the average architect's office much of this material is wasted. It cannot all be filed because of the attendant overhead expense, and consequently much of this sometimes expensive material finds its way directly into the waste basket.

Upon the other hand, this literature is of great value to the architect and is of direct sales importance to the manufacturer. It is evident that under the present situation injustice is being done to both parties and that there is a mutual loss and a mutual "waste in advertising" which carry their quota of direct financial loss to the manufacturer and are

in turn translated into selling costs which are ultimately paid by the investor in building construction. To illustrate the architect's viewpoint, we may quote excerpts from a recent letter received from one of the leading architects in the United States, relative to the article under the heading "Straight Talks to Architects" which appeared in the Business and Finance Section of THE FORUM in the October issue.

"I have a feeling that, in order that the Editor's criticism should be just, he should devote a chapter to waste in advertising, unbusinesslike and impossible methods of indexing, and other suggestions which I could point out at greater length. For example, this firm had in one day six letters from a national advertiser, all duly stamped and addressed, several to each member of the firm as individuals, and several to the firm itself. Multiply this example, if typical, by the number of architects in the country, and realize that the cost of this inexcusable duplication is added to the cost of material and see the result."

"I believe that your journal will be entirely in accord in this matter, but you must realize that construction is probably the most complicated industry extant. Everything which you can do to standardize and prepare the data for architects will be of inestimable value to them and to the public, but at the present time I defy anybody, including your Editor if he had absolutely nothing else to do, to keep track of the situation as it actually exists."

It is quite evident that architect and manufacturer should give serious consideration to this question of sales literature and catalog descriptions of materials and equipment for buildings. The average architect is not making practical use of much of this material, which is of direct value to him. The average manufacturer is wasting money and sales effort in the presentation of extraneous matter in his literature, through the use of poor mailing lists which contain a large amount of duplication and which for other reasons may not be dependable, through presenting his information in a manner which is not of practical value to the architect and through the use of impractical sizes of catalogs and often by the preparation of printed matter which is unnecessarily expensive and cumbersome.

The recent meeting called by the American Institute of Architects, having as its purpose the discussion of this subject directly with the manufacturers, is an important step in the right direction. Of course nothing of a definite nature could be accomplished at one meeting, but it did serve to develop valuable points of contact between the architect and the manufacturer and resulted in the

appointment of several committees to give consideration to various phases of this subject. Most of the officers of the Institute were present, together with representatives of about 60 leading manufacturers and representatives of various architectural publications. The meeting was opened by the President of the Institute, Henry H. Kendall of Boston, who explained the situation concisely, expressing the hope that grounds for co-operation might be established for the mutual benefit of both the architects and the manufacturers. A number of interesting addresses were made by members of the Institute and by advertising and sales managers of various well known manufacturing organizations.

We may note, however, several unusually important points brought out by a few of the speakers. O. C. Harn, Advertising Manager of the National Lead Company, who has had unusually extensive experience in this field and whose opinion is recognized as that of high authority, refuted to a certain extent the statement that architects want nothing excepting practical information which might be contained in facts and figures. It is his well founded opinion that a strong element of sales appeal is of importance in order that the architect should give his consideration to the particular line of material or equipment concerned and may make a 'preliminary selection of the manufacturing organizations which he wishes to consider. He then reaches the stage of comparison on practical points, such as structural integrity, utility value and prices.

Robert D. Kohn, of the American Institute of Architects, said that the manufacturer certainly has information which is of great importance to the architect and that the architect should not treat the sales effort of the manufacturer as constituting a nuisance to him. Mr. Kohn frankly said that he does not know how this problem is to be solved. He feels that too many superlative claims are made in advertising, but he is also under the impression that the architect is foolish when in writing his specifications he calls for the "best," when in many instances materials or equipment which may not be the best are sufficiently good for the purpose and represent a direct saving to the owner.

In other addresses by manufacturers, it was suggested that the average architect today does not know what he wants in the way of information from manufacturers, which is a statement based on fact because the average architect has given little consideration to this question. One result of this meeting was the formation of four active committees to give serious consideration to the several points involved, and to call further meetings until certain standards may have been established which should result in eliminating a considerable amount of waste of money and time, both by the architectural profession and by the manufacturers.

There are times when the architect is greatly in need of service and information from the manufacturers. It can be readily understood that this is

not a stable condition as it depends entirely upon the amount and character of work in the architect's office. It would seem, therefore, that the development of proper indexing and filing systems would be a partial solution to this problem. It must be realized, however, that if fair consideration is to be given to all literature which the architect receives, these files would soon become too cumbersome and the expense of maintaining them too great for the average architect.

The subject of indexing and filing in the architect's office is one which will receive serious consideration in a future issue of THE FORUM, when we will present methods used by various architects. In this connection we may note the existence of a paradoxical situation. The further we go from the large cities in this country, the greater value we find attached by architects to manufacturers' literature. This is largely due to the fact that in the larger cities the architect can find within easy distance of his office sales representatives of almost every important line of manufacture in the building industry. Through direct advertising, and to a certain extent through direct mailing, he has a certain impression of those manufacturing concerns which are active in different lines, and when he undertakes the design of a particular building, he is in a position to get information quickly. This is not the case in smaller cities and towns.

The average architect who practices in smaller communities is not usually in a position to maintain an expensive filing system. We have noted that inquiries received through the Service Section of THE ARCHITECTURAL FORUM for manufacturers' literature have been in inverse proportion to the allocation of sales offices. We have been told also that the architect who is not located in close contact with sales outlets gives more study to manufacturers' literature, although he may not preserve it to any great extent.

We believe that the architect would be directly benefited if manufacturers would cut down the volume of direct mailing matter and eliminate lengthy discussion of generalities. We do not believe in limiting direct mail advertising to mere presentation in cold type of facts and figures. While a time may come when the architect must be interested in this subject, he is also interested in examples of successful use or installation and he is impressed by institutional advertising of the right character which will definitely spell to him service and dependability. We believe also that there should be certain standard limits of size, and undoubtedly these will be worked out by one of the committees already referred to. The manufacturer should seek to make his literature at once informative and of practical value.

The average architect does not like to experiment, for many have had sad experiences because of selection of materials or devices which were put forward by new organizations which have not been able to stand behind their products.

Building Activity in 1922

THE question which is uppermost in the minds of architects today relates to the activity which may be expected in their offices in the year 1922. In the early summer, when building activity was not up to normal expectation, THE FORUM predicted that with the coming of fall there would be a noticeable improvement from the architect's viewpoint. Building reports of August, September, October and November show a material increase and our investigations among architects indicate that many offices are becoming active and that the prospect is brighter in almost all instances. It has been our opinion that this stirring in the fall of 1921 would be the beginning of a period of sound activity in the building field, which will probably not assume "boom" proportions but which will represent for several years to come a greater than normal expenditure in the building field, particularly in classes of construction which present sub-normal totals over the past few years.

During the year 1921 the cost of construction has lessened materially, due to decreased prices of materials and labor and to greatly increased production on the part of labor. Reasonable progress is being made towards stabilized conditions, and building investors, to a great extent, are working only for normal stability of the market as expressed in the graphic presentation of the building cost situation published in the September issue of THE FORUM in the Business and Finance Department.

In order to gauge the volume of construction activity which has been waiting only this approach towards stabilized conditions, THE FORUM has recently made an intensive survey of work being planned in architects' offices, which clients might reasonably be expected to build as material and labor costs reach stabilized levels. Reports have been received from over one thousand architects' offices giving classification of work, together with estimated value of the new buildings. On the next page there will be found a complete tabulation showing the number of reports received in each state and a classification of the work, together with total volume of anticipated expenditure in each class. This table has been arranged so that percentages might be determined showing the relative volume in dollars of each class of construction in the particular section of the country under consideration.

As these reports were received from all types of architects and from offices both large and small, it is fair to assume that one thousand such reports will serve to present fair averages for the entire volume of work which will be controlled by architects over the next year or two. In determining percentages in this manner, therefore, it is safe to assume that these percentages will closely approximate the result which will be shown by actual construction reports, filed as the various plans are completed and contracts let. We have, therefore, for consideration this interesting table showing classified percentages which indicate the relative expenditure in each important class of building construction for each section of the country. By studying this tabulation, the architect will be able to determine with a fair degree of accuracy the *relative demand* on the part of the buying public in the building field.

When the results of this investigation are combined with reports on various important factors affecting the construction market, it would seem that without a doubt 1922 is to be a much busier year for architects than 1921, and that in fact it will be the first of a series of good years for the profession. It would seem that labor costs are well under way toward stabilization on a lower cost basis, and it is reported that in many sections of the country men are coming back into the building trades which were sadly depleted by war industries and by previous lack of employment. Financing for building construction will be easier for 1922 than it has been for the last five years. The investors, both permanent and speculative, are again turning their attention to the building field. It may be noted that in New York, where the construction of apartment houses has been most active, there seems to be no difficulty in selling them.

All architects are familiar with cycles in their business, through which they pass from lean to fat years. When we predicted some months ago that the pendulum had reached the lowest point of its swing in the fall and would start the other way toward better business for architects, it is evident that we were correct. We predict again, therefore, that 1922 is to see gathering momentum as this pendulum swings up and out in a long arc, indicating better business for the architect.

PERCENTAGE ALLOCATION OF PUBLIC DEMAND FOR NEW BUILDINGS

(See also table on next page)

	Dwellings	Apt. houses	Hotels	Schools	Churches	Hospitals	Public bldgs.	Office bldgs.	Industrial	Public garages
Northeastern states...	8.3%	9.4%	5.7%	23.8%	3.3%	17.6%	7.9%	12%	8.9%	3.1%
North Atlantic states...	10.4	12.5	11.3	15.5	14.5	6.7	7.8	12.8	6.9	1.6
Southeastern states...	10.8	20.4	16	12.5	4.7	4.6	10.1	17.6	2	1.3
Southwestern states...	13.2	11	12.2	14.7	12.6	8.5	8.7	6.1	7.3	5.7
Middle states.....	7.2	11.8	11.4	15	12	6.1	12.1	14.1	7.9	2.4
Western states.....	8.1	13.4	12.2	23.6	5.8	10.1	9.1	9.1	5.8	2.8
Average percentage of national demand for architectural service in 1922.....	9.6	13.8	11.4	17.5	8.8	8.9	9.3	11.8	6.4	2.8

PROSPECTIVE WORK IN THE OFFICES OF ONE THOUSAND ARCHITECTS

Compiled from Reports Furnished by ARCHITECTURAL FORUM Subscribers

Figures in Dollars of Estimated Value (Thousands Omitted)

	Number of reports	Dwellings	Apt. houses	Hotels	Schools	Churches	Hospitals	Public buildings	Office	In- dustria ^l	Public garages	Total construc- tion
Northeastern States												
Maine	4	202	600	475	850	104						
New Hampshire	3	164	40		410	50	556	47	12	200	240	
Vermont	2	75	100	50	50			605	180	25		
Massachusetts	50	2,973	3,402	3,000	9,595	773	10,112	2,135	6,363	3,199	1,310	
Rhode Island	7	639	1,005		1,760	730	130	285		182	256	
Connecticut	26	1,122	656	12	2,090	375	100	1,830	911	1,875	122	
Total (in thousands)	92	\$5,175	5,803	3,537	14,755	2,032	10,898	4,902	7,466	5,481	1,928	\$61,977
Percentage		8.3%	9.4%	5.7%	23.8%	3.3%	17.6%	7.9%	12%	8.9%	3.1%	
North Atlantic States												
New York	148	16,955	16,257	15,620	24,530	6,790	11,315	10,348	20,630	7,963	1,550	
New Jersey	39	3,860	2,514	1,835	7,555	5,715	390	3,375	515	2,575	768	
Pennsylvania	69	7,165	8,413	14,655	10,315	18,015	7,150	3,695	12,627	8,566	1,775	
Delaware												
Maryland	11	414	1,012			980	512	175	3,675	400	540	309
Dist. of Columbia	9	1,169	7,237			725	10,145		1,025	2,155		100
Total (in thousands)	276	\$29,563	35,433	32,110	44,105	41,177	19,030	22,118	36,327	19,644	4,502	\$284,009
Percentage		10.4%	12.5%	11.3%	15.5%	14.5%	6.7%	7.8%	12.8%	6.9%	1.6%	
Southeastern States												
Virginia	10	1,222	810		2,345	281	430	1,800	3,635	340	125	
No. Carolina	9	496	670	1,065	130	710	285	25			215	
So. Carolina	5	532	50		120	15	75	75	55	48	50	
Georgia	7	205	210	450	129	535	150	775	750	100		
Florida	12	716	4,250	4,250	16	418	6	47	693	96		
Total (in thousands)	43	\$3,171	5,990	4,700	3,675	1,379	1,371	2,982	5,158	584	390	\$29,400
Percentage		10.8%	20.4%	16%	12.5%	4.7%	4.6%	10.1%	17.6%	2%	1.3%	
Southwestern States												
Kentucky	9	780	650		280	290	12	450	60		18	
West Virginia	13	1,540	1,151	1,270	195	590	280	160	1,105	700	510	
Tennessee	7	454	373	60	478	420	460	100	150	325	115	
Alabama	5	400	150		575	485	75	190	400	40	50	
Mississippi	1	31	52		75	15					95	
Louisiana	8	508	143	650	90	130	80	300	152	70	38	
Texas	27	1,755	1,623	1,965	3,865	3,365	1,770	2,402	584	1,864	305	
Oklahoma	10	755	910	1,600	1,230	640	1,110	525	340	330	1,620	
Arkansas	3	102	165	275	230	100	250	17	100	200		
Total (in thousands)	83	\$6,325	5,217	5,820	7,018	6,035	4,037	4,144	2,891	3,529	2,751	\$47,767
Percentage		13.2%	11%	12.2%	14.7%	12.6%	8.5%	8.7%	6.1%	7.3%	5.7%	
Middle States												
Ohio	57	4,797	6,388	7,825	6,030	4,866	6,250	4,715	5,277	3,368	1,268	
Indiana	38	2,015	2,801	3,303	5,835	1,897	2,140	3,065	1,960	1,260	429	
Illinois	48	2,596	9,673	15,150	7,020	6,587	2,000	11,004	22,385	10,571	1,647	
Michigan	32	3,366	2,185	1,800	3,060	5,335	1,390	2,782	5,020	2,071	1,581	
Wisconsin	23	2,394	2,687	500	4,760	1,720	590	1,918	1,260	650	633	
Minnesota	44	1,990	2,901	2,615	8,226	2,599	1,750	1,445	4,335	3,068	539	
Iowa	21	1,033	3,315	1,090	4,781	11,105	890	3,455	3,185	670	120	
Missouri	34	2,841	6,090	2,810	1,785	1,615	3,286	3,549	1,380	2,863	468	
North Dakota	5	444	100	115	1,070	570	135	505	30	236	390	
South Dakota	3	179	50	65	551	15	175	190	15		60	
Nebraska	14	877	1,630	1,060	3,330	1,775	765	2,770	170	650	390	
Kansas	15	651	425	475	2,080	730	195	3,825	485	82	255	
Total (in thousands)	334	\$23,183	38,245	36,805	48,528	38,814	19,566	39,223	45,502	25,489	7,780	\$323,135
Percentage		7.2%	11.8%	11.4%	15%	12%	6.1%	12.1%	14.1%	7.9%	2.4%	
Western States												
Montana	7	86	460	1,395	2,295	55	505	240	200	130	100	
Wyoming	3	143	80	30	850	300	20	475	165		100	
Colorado	13	417	960	2,250	1,720	535	640	485	600	395	170	
New Mexico	3	260	25	144			125	65	75		30	
Arizona	2				750	100	150	1,050	400			
Utah	7	345	715	750	1,125	810	350	914		135	109	
Nevada	2	128	190	500		25	30		225	50		
Idaho	4	132	130	675	720	130		150	80	50		
Washington	25	1,487	2,666	1,455	6,795	1,135	1,921	1,892	3,800	667	290	
Oregon	12	465	185	665	305	540	635	2,020	395	1,175	230	
California	49	3,614	6,296	2,763	6,042	1,438	4,410	701	2,040	2,444	1,423	
Total (in thousands)	127	\$7,077	11,707	10,627	20,602	5,068	8,786	7,992	7,980	5,046	2,452	\$87,337
Percentage		8.1%	13.4%	12.2%	23.6%	5.8%	10.1%	9.1%	9.1%	5.8%	2.8%	

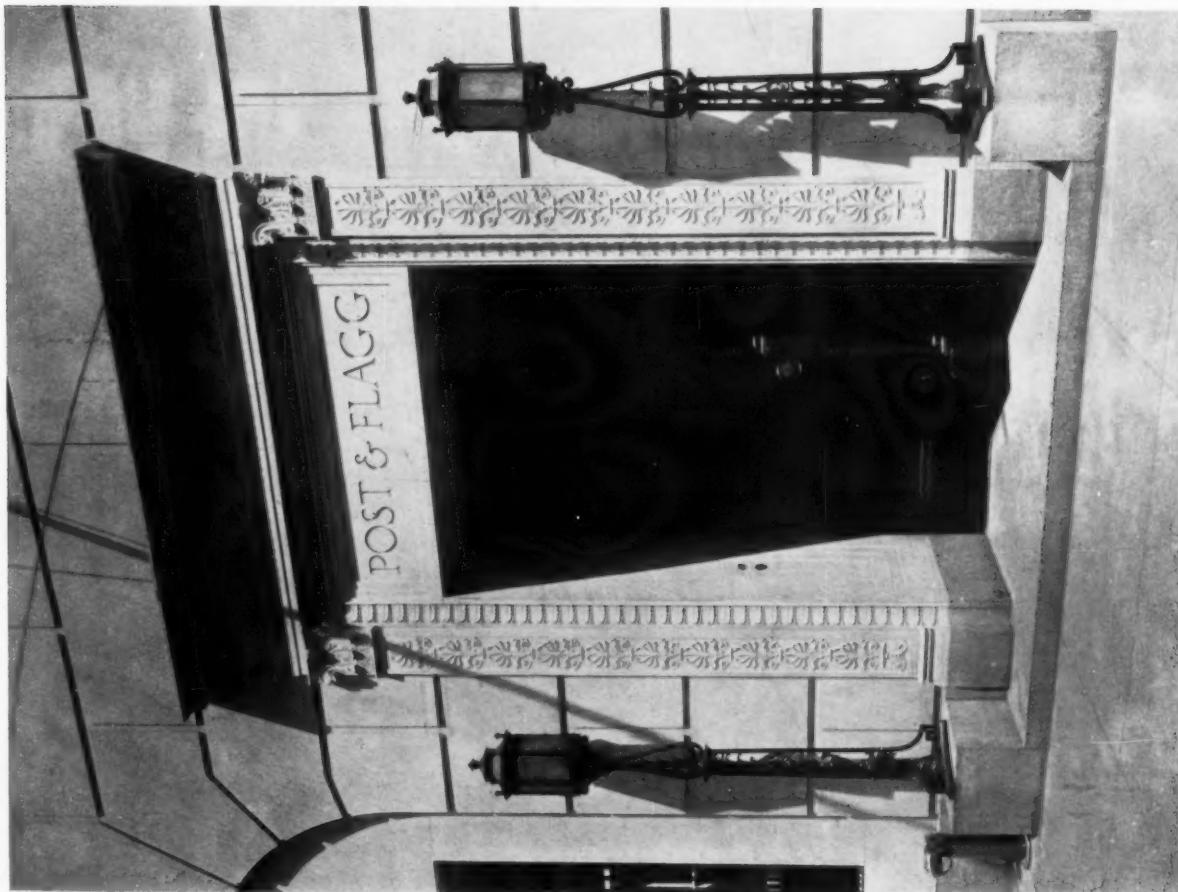
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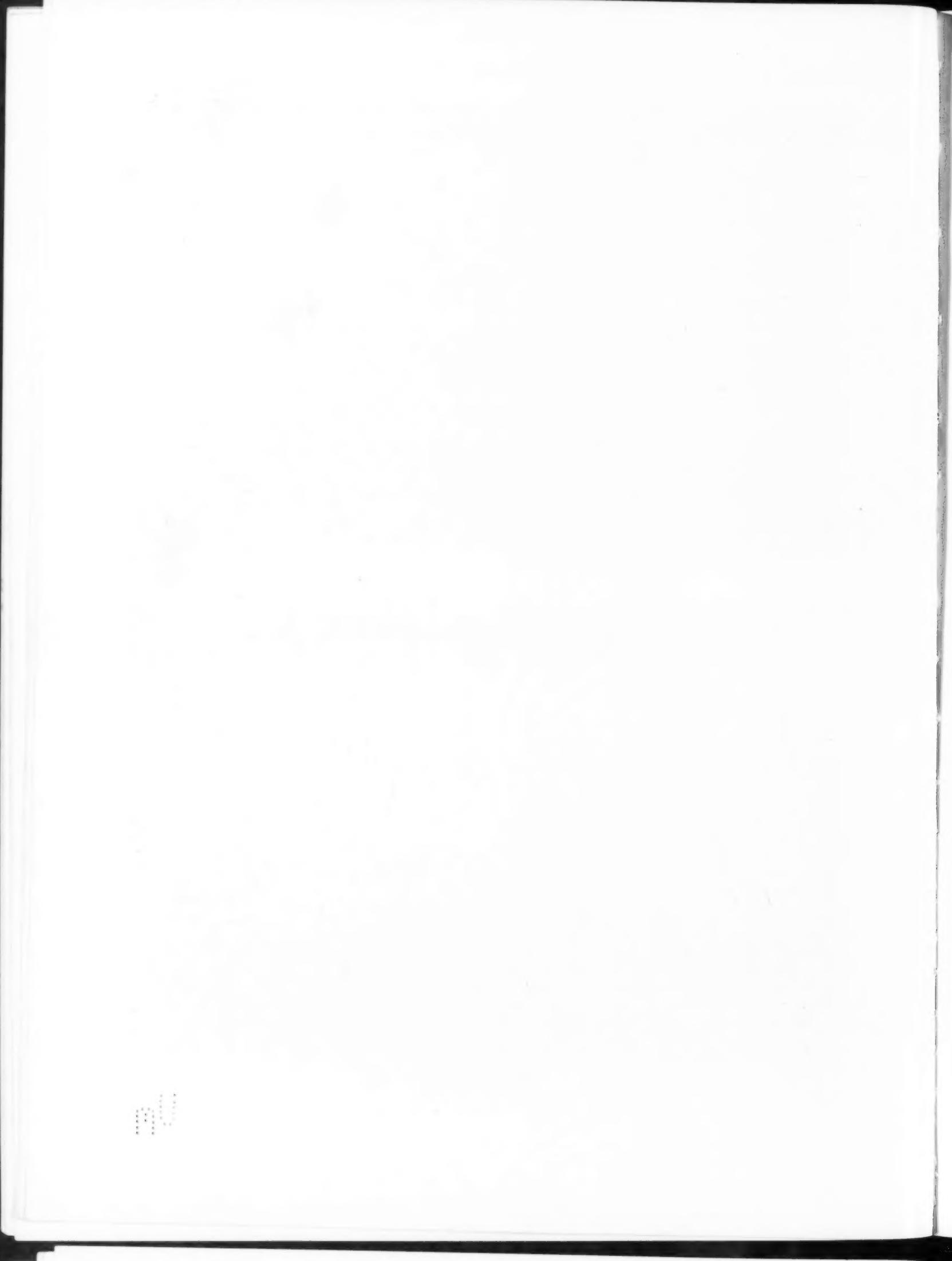
THE ARCHITECTURAL FORUM

PLATE 85



ENTRANCE DOORWAY AND MAIN FAÇADE
OFFICE OF POST & FLAGG, NEW YORK
GEORGE B. POST & SONS, ARCHITECTS





DECEMBER, 1921

THE ARCHITECTURAL FORUM

PLATE 86



CONFERENCE ROOM



CUSTOMERS' ROOM

OFFICE OF POST & FLAGG, NEW YORK

GEORGE B. POST & SONS, ARCHITECTS



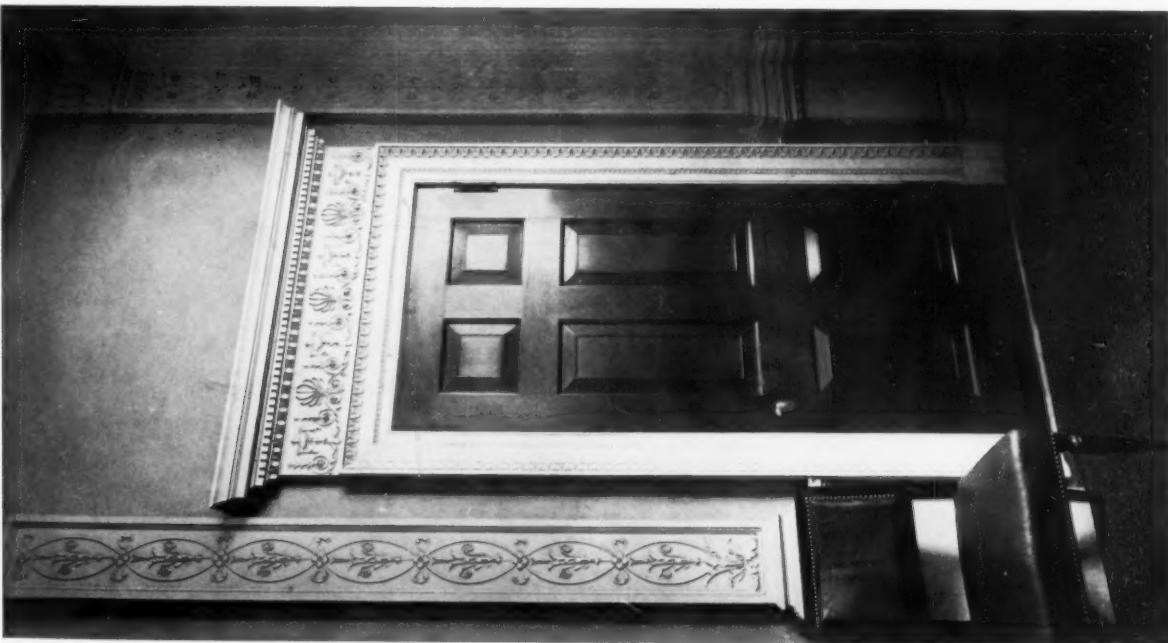


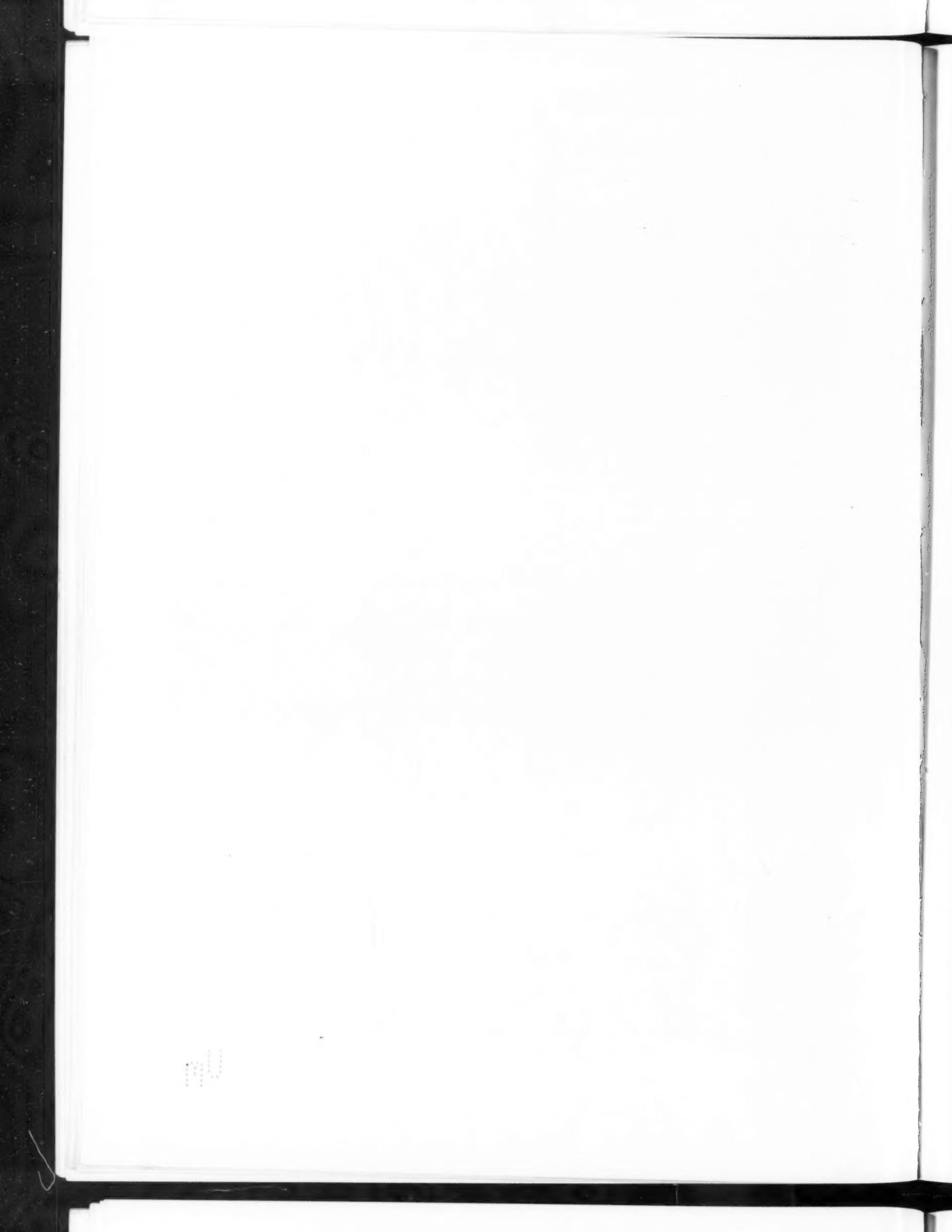
MANTEL IN PRIVATE OFFICE



OFFICE OF POST & FLAGG, NEW YORK

GEORGE B. POST & SONS, ARCHITECTS

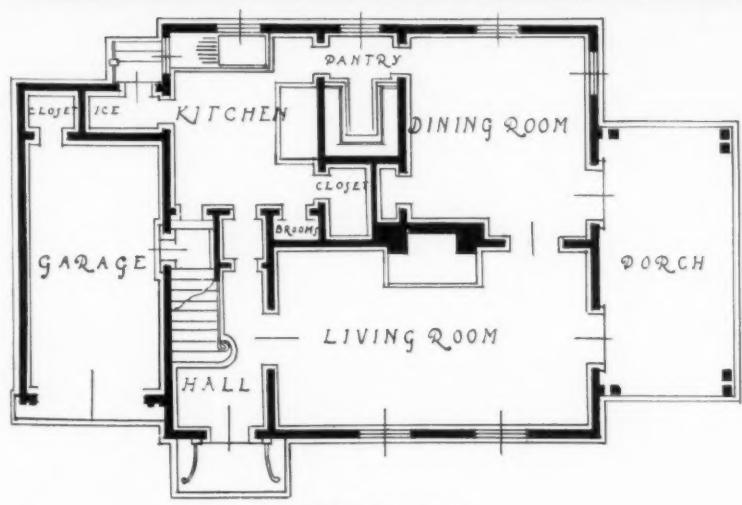




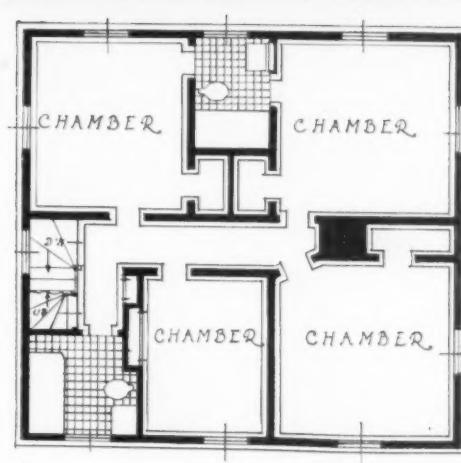
DECEMBER, 1921

THE ARCHITECTURAL FORUM

PLATE 88

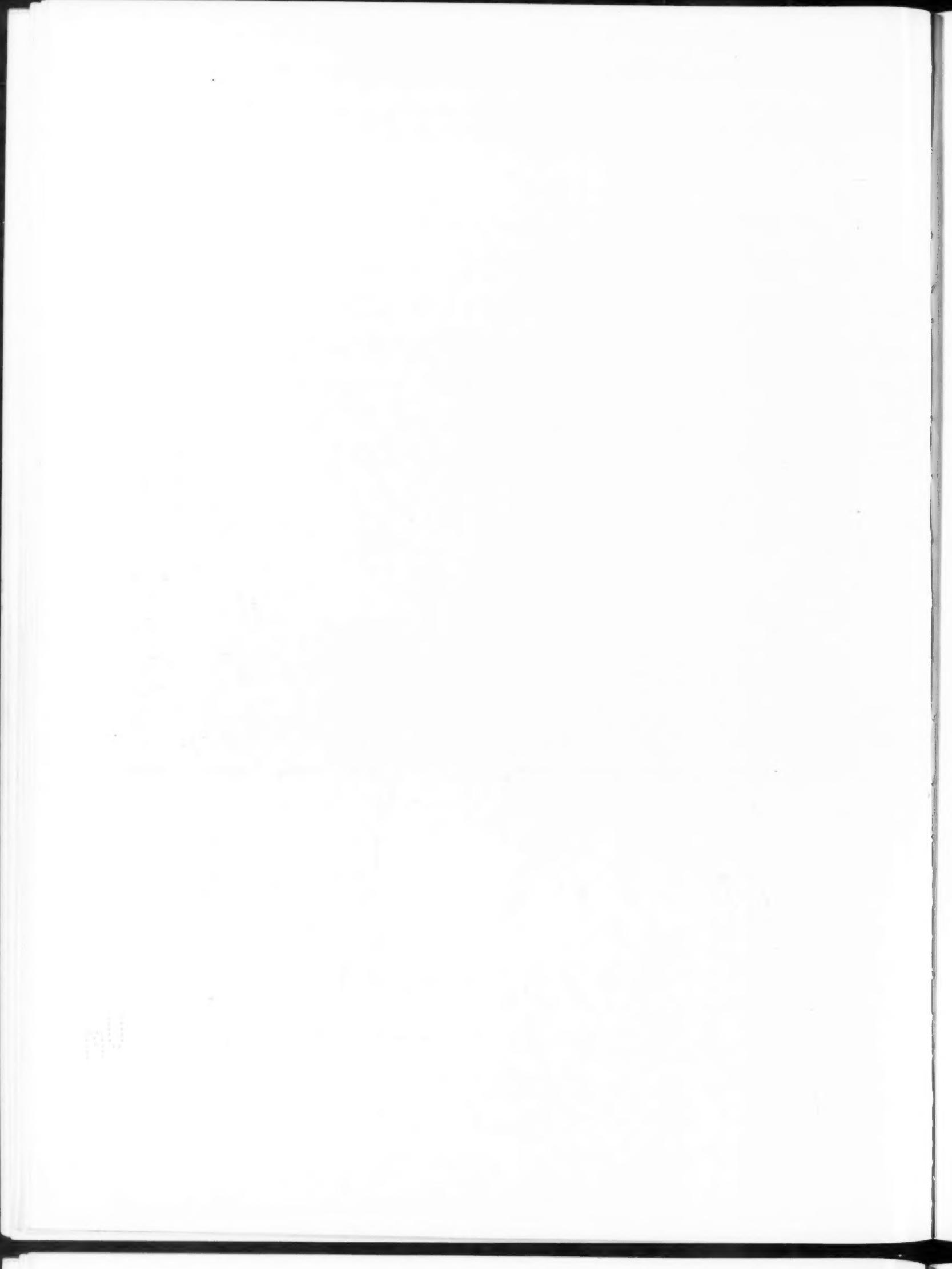


FIRST FLOOR PLAN



SECOND FLOOR PLAN

HOUSE OF MONTGOMERY L. HART, ESQ., PELHAM MANOR, N. Y.
JULIUS GREGORY, ARCHITECT



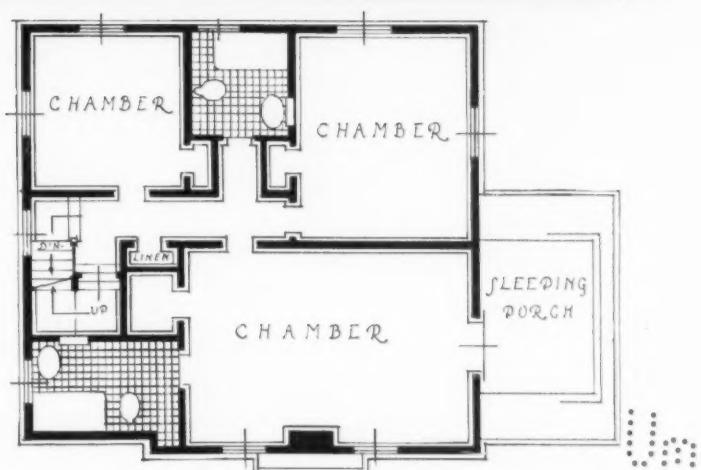
DECEMBER, 1921

THE ARCHITECTURAL FORUM

PLATE 89



FIRST FLOOR PLAN



SECOND FLOOR PLAN

HOUSE OF WALTER HAEFELI, ESQ., PELHAM MANOR, N. Y.

JULIUS GREGORY, ARCHITECT



Plate Description

OFFICE OF POST & FLAGG, NEW YORK. PLATES 85-87. The tendency of banks and financial houses of various kinds to erect buildings for their exclusive occupancy explains the planning of this structure in New York's financial district for a stock and bond brokerage firm. The building, six stories in height, is designed in the style of the English renaissance. Upon the two lower stories as a base the third, fourth and fifth are grouped and arranged with pilasters which carry the cornice, above which is the sixth story. Over the granite base the facade is of marble, with wrought iron guards at the windows of the third story.

The plans of the interior suggest the care and thought with which the architects, George B. Post & Sons, have planned the building. Provision has been made for every department of a complicated business and in addition to public and private rooms for the use of clients there are private offices and conference room for the members of the firm and the necessary telephone and telegraph facilities, bookkeeping and filing departments, storage vaults, etc., while the upper floor is planned as a rest room for employees.

Marble and stone have been extensively used for the entrance hall where the floor is an inlay of pink, black and light yellow marbles and the facing of the wall is of stone laid in slab courses with shallow rustication; the ceiling is of ornamental plaster. The interiors are in the renaissance style indicated by the facade and the walls, in general, are of old ivory mottled in slightly darker tones to produce a parchment effect. In the working parts of the building upon the upper floors a uniform treatment has been adopted with French gray the prevailing color.

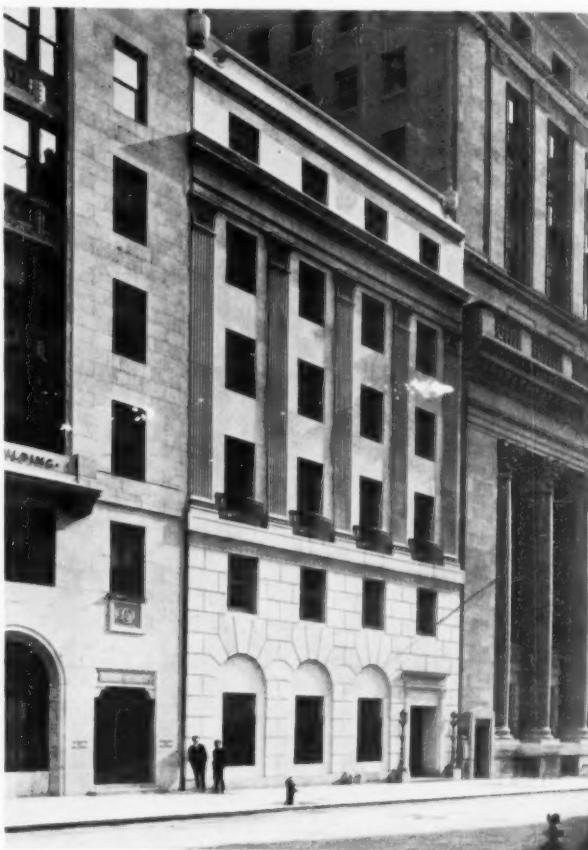
HOUSE OF MONTGOMERY L. HART, PELHAM MANOR, N. Y. PLATE 88. In this suburban house Julius Gregory, the architect, has secured an unusual result by using matched siding instead of the familiar shingles or clapboards for the exterior walls. Although but of moderate size the house gains dignity from the symmetrical appearance given by the garage at the left which is balanced by the veranda at the opposite end of the house. The arrangement of the main doorway with its platform of brick and its delicate balustrade of wrought iron gives to the entrance the emphasis which its proper treatment demands. The exterior also gains considerably from the absence of dormer windows of any kind.

The floor plans show an arrangement which is convenient and economical of space and sufficiently dignified to accord with the exterior of the house. The use of French windows which open from the living room and dining room into the sun porch makes this an integral part of the house and increases materially the size of the lower floor. The garage is reached through a door under the stair-

way and its being connected with the house makes its heating and lighting both simple and economical. The exterior of the house is white and the blinds are painted light green.

HOUSE OF WALTER HAEFELI, PELHAM MANOR, N. Y. PLATE 89. In designing this house the architect, Julius Gregory, has used brown stained shingles with trim painted white and light green blinds for the exterior, the entire composition being given an added character by the prominently placed chimney of rough stone. The house, while small, is planned to possess a decided dignity of appearance which is emphasized by the added width given by the sun porch at the right.

The interior is arranged to provide a reasonable number of rooms of fair size instead of many rooms small and badly cut up. The principal bedroom is provided with a bathroom of its own with another bath for the two additional bedrooms. In these two houses planned in Mr. Gregory's office the interior finish is white wood, treated with enamel; floors are of comb grained pine and fireplaces are brick. Both houses were built during 1918-19 and their cost was around 25 cents per cubic foot.



Office of Post & Flagg, New York

George B. Post & Sons, Architects

An interesting comparison of scale in which the smaller building holds its position because of sharp detail. Note also the relation of horizontal lines with those of adjoining building

EDITORIAL COMMENT

STRENGTH OF ENGINEERING SOCIETIES

We recently had the pleasure of attending a meeting of the Boston Society of Civil Engineers. In the course of routine business a long list of new members of the Junior Section of the Society was read. It may be recalled that the activities of this section, which was instituted little more than a year ago, were commented on editorially in a recent issue. Its growth is proof enough of the benefit to the young man.

At the same meeting it was explained that a student engineering society at Northeastern College in Boston was desirous of affiliating with some society of practicing engineers, and that after they had considered the respective advantages of different local engineering societies they selected the Society of Civil Engineers with which to seek affiliation. The result is a new branch of the Boston Society of Civil Engineers, known as the Northeastern College Section. In commenting upon their connection with the Society the chairman made an incidental remark which to us is significant of the successful organization that engineers are able to maintain. He said, "We are glad to see these young men undertaking their engineering society *work* so early." We want to call particular attention to that word *work*, because we feel that in that brief expression is the kernel of the success of engineering organizations.

The engineer looks upon his professional society as the medium through which he is enabled to serve and co-operate with his fellow engineer, and likewise the public. Interest in professional society activities is to him a duty; it is *work* which requires performance just as much as the duties of his individual practice. It is through his society that he largely keeps abreast of improvements in his profession and its relations with the public. He has a highly developed sense of professional responsibility; he looks upon his investigations and accumulation of engineering knowledge not as personal property but as the property of the engineering profession, to be held in trust, shared with his contemporaries, and passed on to the next generation. His constant aim is the improvement and dissemination of engineering knowledge and this is exemplified in his attitude toward his professional societies. The most competent engineer is always ready to acquire knowledge; he is just as ready to impart it, and the engineering society is the common meeting ground of seekers and givers.

How many architects look upon participation in their professional society activities as *work*? How many architects recognize the value of professional co-operation and back up their belief by membership in architectural societies? The number in

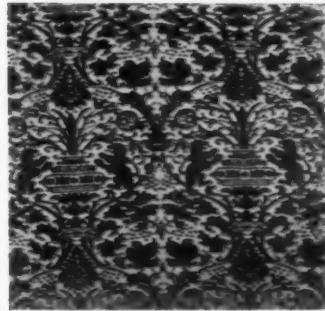
each case is pitifully small. Perhaps that provides the answer to many of the problems that beset the architectural profession.

Much dissatisfaction is expressed with the public attitude toward architects. There are repeated suggestions that the public should be educated to an appreciation of architecture and the duties involved in its practice. Frankly, is it so much the public that needs education as it is the architect? The public is ordinarily fair in the bestowal of its recognition and appreciation. Is it not more practical to consider first if the architect is fulfilling his obligations to the degree that will justify public recognition?

Today public service is more needed than ever before. There are problems of immense importance directly affecting the public welfare, the arts, industry and general human relations. The professional man, because of his unprejudiced training and his peculiarly altruistic position in the economic affairs of the world, has special qualifications that give to his advice and opinions unusual value, and they should be placed at the public service. The public will gladly receive this service, and will willingly pay for it and accord it full recognition. The power to give service must, however, first be made a definite reality; the work of individuals must be co-ordinated and directed into productive channels. This can only be accomplished through co-operative effort and today the most effective and practical medium for the co-ordination of professional effort is the professional society.

Architects have in the American Institute of Architects and its local chapters an organized society with potential power to serve the profession and the public adequately, yet its membership constitutes hardly more than 20 per cent of the practicing architects in the country. What is the 80 per cent doing toward the promotion of professional interests? Even though the 20 per cent in the Institute ranks were individuals of the greatest influence, can this minority be expected to carry all the burdens of the profession? Does this state of organization indicate a very extensive belief that interest in professional activities is *work*, a duty calling for serious performance? Where lies the fault? Is it in the character of the organization existing? We do not think so. The fault lies with the individual architect; he is quick to recognize the difficulties that he labors under, but he does not so readily recognize the simple, fundamental principles which if rightly applied will remove the difficulties. Let him take pattern after the engineers, recognize that co-operation with his fellow architects and participation in society activities are *work* of the first importance, and the results will soon be apparent.

DECORATION *and* FURNITURE



A DEPARTMENT
DEVOTED TO THE VARIED
PROFESSIONAL & DESIGN INTERESTS
WITH SPECIAL REFERENCE TO
AVAILABLE MATERIALS

It will be the purpose in this Department to illustrate, as far as practicable, modern interiors furnished with articles obtainable in the markets, and the Editors will be pleased to advise interested readers the sources from which such material may be obtained

Modern Reproductions of Italian Renaissance Furniture



Reproductions of Sixteenth Century Italian Arm Chairs



Italian Fabric in Gold and Color on Gray Ground
Repeats 12 ins. in width



Sixteenth Century Italian Center Table
Height, 29 ins.
Diameter, 24 ins.



Early Sixteenth Century Walnut Table
Height, 24 ins.
Diameter, 20 ins.

Below, a Modern Walnut Table
Reproduced from Sixteenth Century Italian Example
Length, 6 ft. 6 ins.; width, 33 ins.; height, 31 ins.



✓ Interiors Adapted from the Italian

PART IV. FURNITURE AND ITS ARRANGEMENT (CONCLUDED)

By WALTER F. WHEELER

THE Italian style is essentially formal, and while it holds forth great possibilities for domestic use it should not be employed in rooms where it is necessary that a very intimate appearance should prevail, neither should it be attempted in a room too small to permit of a fairly well balanced, though not necessarily a symmetrical, arrangement of furnishings. The pieces of furniture used in such an interior are not many but to be true to type they must be of bold and vigorous scale, which naturally involves corresponding size, and size requires space for the assertion of the dignity and importance of the pieces used.

The success of a room arranged in this style demands careful and thoughtful placing of furniture. Most pieces of this type in addition to being of generally robust scale are rectilinear in form and of marked architectural character, and for this reason are seen to the greatest advantage when placed against walls. An Italian interior is apt to be dominated by the fireplace. It should therefore be placed where it will be instantly recognized as the center of architectural interest as one enters the room; the mantel should be seen as a whole and not partially hidden by groups of furniture placed between it and the entrance. Italian appreciation of the full importance of this fact may be the reason that in most of their interiors the center of the room is invariably left open, the furnishings being distributed against the different walls. This arrangement, however, is contrary to American custom so it becomes necessary to adopt some plan which, without entirely destroying the

method of Italian arrangement, will render the interior livable and comfortable for American use.

Take, for example, a living room of generous size and of oblong shape, the chimney-piece occupying the middle of one of the longer walls with the entrance to the room upon the opposite side. The creating of the center of interest in front of the fireplace, which is the usual custom in America, would at once destroy the unity of the room by grouping between the chimney-piece and the door the various pieces of furniture necessary, which would cut off the view of the fireplace and mantel as one enters the room. A much better arrangement would be had by arranging two centers of interest, one at each side of the fireplace, facing each other. Each center may be built up by using a davenport of low and suitably broad type, with tables of small sizes and chairs of various kinds at each end, or else each of the centers may be arranged about a long table of suitable form, the davenports or tables in these instances being placed at right angles to the fireplace. Thus, as one enters the room, the chimney-piece will be readily observed, the centers of interest being to the right and left.

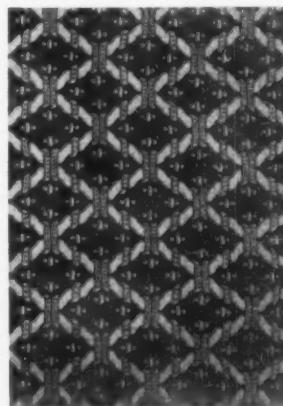
It might be, however, that in such a room the entrance would be at one of the ends, in which case the grouping of furniture could be at the middle of the room and in front of the fireplace, since as one enters the room the axes of the open spaces would be parallel with the axis of the doorway, and the group of furniture would not interfere at all with the full view of the chimney-piece. Such a group might include a davenport directly be-



Italian Damask Made in Various Color Combinations Repeats 20 ins. in width



American Reproduction of Gothic Tapestry
"Ten Stories of Boccaccio," 7 ft. wide, 8 ft. high



Mohair Velvet Reproducing Italian Design. Diagonals of Diamonds, 3 $\frac{1}{4}$ by 4 $\frac{1}{4}$ ins.

fore the fireplace with small, low tables at either end and a long Italian table behind it. Small benches and incidental chairs or tables might be added to the grouping for convenience, but care should be taken that too intimate a fireplace setting is not the result; such a setting would be more in keeping with an interior of some other type—the Georgian, for example, in which the furniture is smaller.

At least one wall of such a room should be comparatively free from windows or doors so that a formal grouping of wall furniture may be had, and such a grouping would be most effective if opposite the chimney-piece. The group would be best made about some



Florentine Table of a Type Popular at End of Fifteenth Century. Suitable for Use in Modern Dining Room or Library. Height, 2 ft. 7 ins.; length, 8 ft. 5 ins.; width, 3 ft. 3 ins.



A Reproduction of Fifteenth Century Italian Monastic Table
6 ft. in length; 2 ft. wide



Italian Walnut Table
Height, 30; diam., 28 ins.



Rough Plaster Walls Afford Background for Grouping of Metal Torcheres and Candlesticks and Venetian Metal Console. Hampton Shops, Decorators

important piece of furniture such as a long table or a *credenza*, several illustrations of which have been shown in these pages, the table or *credenza* being flanked by upholstered or carved wood chairs,

while above and occupying an important area of the wall surface there might be hung a tapestry or painting of appropriate dignity. To add to the formality of such a setting there might be added to the grouping a pair of tall Italian torcheres. The other sides of the room would generally be arranged so that they would be less important in appearance than those just described.

Modern comfort requires the use of rugs or carpets upon floors of wood, marble or other material, and it will generally be found that with the arrangement of furniture determined the question of rugs can be decided so that the rugs will unify or draw together the different parts of the room or the various groupings of furniture. Oriental rugs or chenille rugs in plain colors may be used with equally good results. Color in hangings and upholstery fabrics is of course highly important and should be full and vigorous in tone to accord with plaster walls and the deep toned wood of furniture and architectural features. The Italians used full reds, blues, browns and greens which in materials such as velvets and brocades created a superbly rich effect. The tops of *credenze* and cabinets were high lights, rendered so by bright majolica



Reproduction of Early Sixteenth Century Veronese Cassone. Made of Wood or Composition Gilded and Polychromed
Length, 5 ft. 4 ins.; width, 21 ins.; height, 27 ins.

jars, silver vessels and gold and polychromed candelabra. One color should be selected to dominate, but it should never be used exclusively. A room will be more livable and interesting with the introduction of the complementary and other colors proportioned in tone and area to provide harmony. Window hangings in an Italian interior are in keeping with the rich simplicity which obtains in regard to other details. Two sets of curtains are generally used, one of light material against the glass, and heavier draperies on the plane of the wall, falling in long, straight lines from poles or cornices and drawn back and forth by cords. For sash curtains there is a vast variety of fabrics such as the reproductions of Italian filet lace in small, figured squares which are best hung against the glass with no fullness, or the more solid materials of silk and wool mixture, valuable for their simplicity and qualities for tempering the light, while for heavier draperies there are not lacking rich velvets and figured fabrics of different kinds, carefully reproduced from renaissance originals. The positions of windows and their relations to important furniture groupings will largely determine their decorative treatment. Renaissance fabrics as a rule are large scaled in pattern; there must, therefore, be sufficient undecorated area in nearby wall spaces to make them effective, and unless favorably located the windows should be subordinate

in color value to the main wall grouping of furniture.

Objects hung upon the walls should be confined to pieces of importance and sufficiently vigorous scale. Tapestries, perhaps, claim first place but of almost equal value are large paintings, either simply framed in characteristic Italian mouldings or with richly carved and gilded frames. Sculptured plaques or bas-reliefs of Della Robbia character are also useful, either in color or in soft terra cotta tones, but small scaled pictures and other intimate objects must be absolutely eliminated if the Italian feeling is to be maintained.

Lighting fixtures in an interior of any kind do much to make or mar the effect of the completed work. The use of torcheres has already been suggested; in many cases they are made of bronze, wrought iron or other metals, but frequently they are of wood, gilded and poly-



Italian Table Showing Spanish Influence
Length, 60 ins.; height, 32 ins.; width, 23 ins.



Italian Sixteenth Century Table
Height, 31 ins.; diameter, 39 ins.



Music Room in Residence of William Ellery, Esq., Brookline, Mass.
Wooden ceiling decorated in color by Robert S. Chase



Upper Part, Modern Venetian Wrought Iron Torchere
Height, 93 ins.; spread, 14 ins.



Reproductions of Old Italian Majolica Oil or Water Jars
Heights vary from 2 to 3 ft.



Upper Part of a Modern Italian Candelabrum
Height, 80 ins.; spread, 18 ins.

chromed, and sometimes portable lights are contrived from carved wooden figures which are gilded and colored. Lights fixed to the walls are used with excellent results and suitable fittings in metal or composition are not difficult to obtain. Fixtures hung from the ceilings are often used and are frequently reproductions of old Italian candelabra. These hanging fixtures, however, should be used only in rooms of generous size, for it must be remembered that in Italian interiors, as with interiors of any kind, fixtures hung from the ceiling have a tendency to make a room seem smaller.

The furnishing of an Italian room need not be a slavish piece of restoration. The three periods of design, early, middle or high, and late renaissance, are well marked but it is not necessary to confine the selection of furniture in a room to any one period. A general sense of uniformity only need be preserved, and this the architect is perhaps

better able to appreciate than any other. The late renaissance type will perhaps find less appeal in the average American house than the earlier or middle periods, but the high note of a room might well be struck with such a piece, as for instance, a center table with carved ends or a *credenza* or cabinet filling the important wall space. Similarly, a piece of eighteenth century Italian bordering on the baroque or a brilliantly painted and decorated secretary or cupboard in green, yellow or red after Venetian models might be introduced for relief to the severity of the principal furniture. There is likewise no reason for confining all of the furniture of a room strictly to Italian models. A study of renaissance forms in all countries will show an underlying basis of marked similarity. Thus Spanish renaissance furniture is closely allied to the Italian of the same period; many pieces of the Jacobean and other periods of English furniture fit in admirably with the Italian. It would be well, however, to bear in mind the fact that a mixture of styles should be made



A Reading Lamp of Bronze or Wrought Iron in the Italian Style
Height, 69 ins.; shade, 22 in. diameter



Reproduction of Venetian Walnut Arm Chair
Stuffed seat and back



Reproduction of a "Dante" or "Savonarola" Chair
Davanzati palace collection, fifteenth century

DECEMBER, 1921

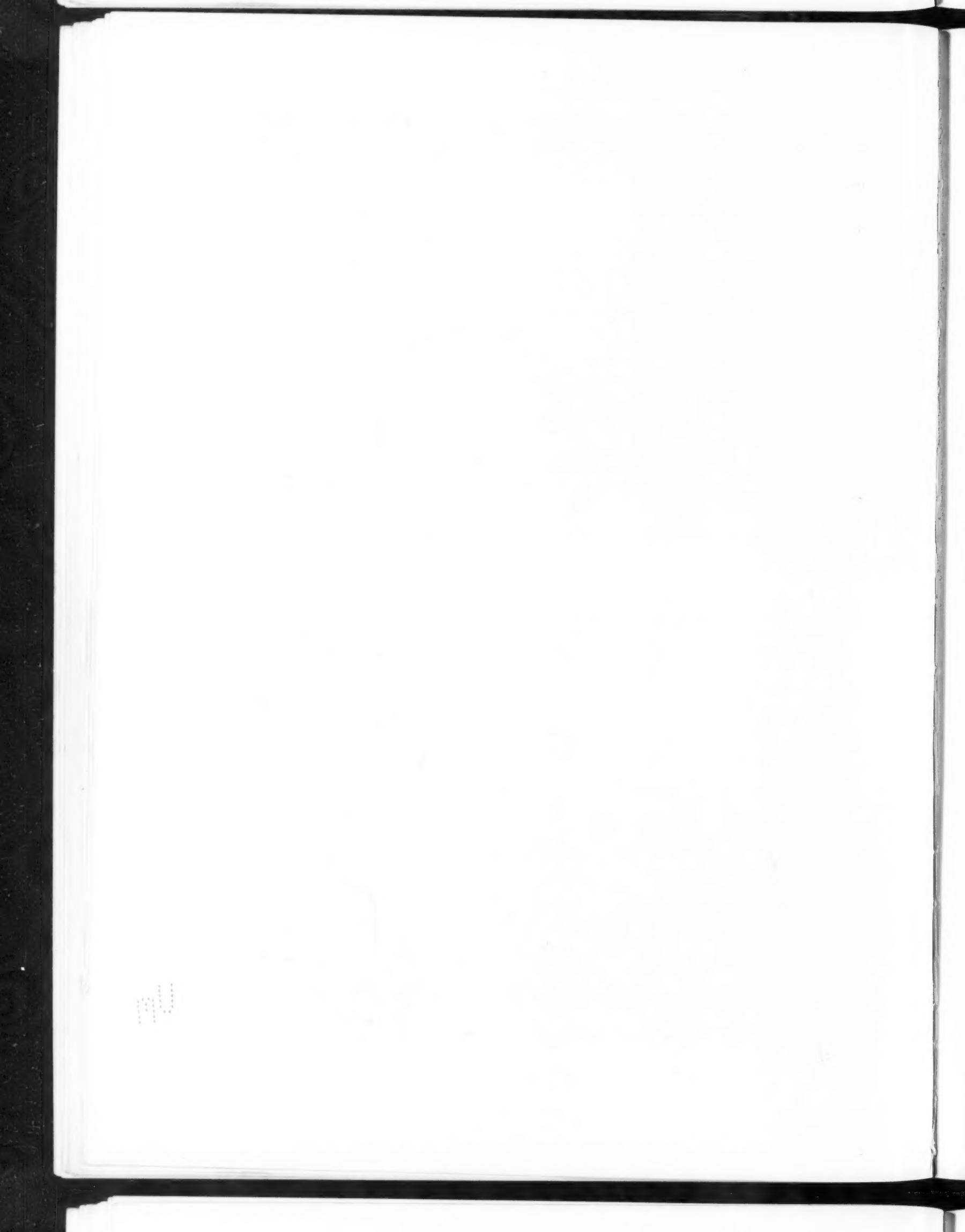
THE ARCHITECTURAL FORUM

PLATE 90



INTERIOR IN HOUSE OF HOWARD F. WHITNEY, ESQ., LONG ISLAND, N. Y.
HOWARD MAJOR, ARCHITECT

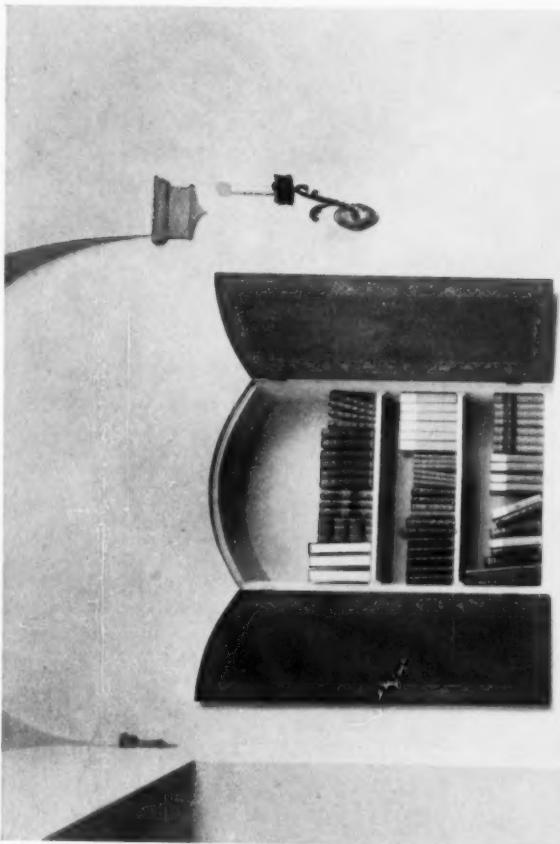
Walls of brownish buff plaster; ceiling, polychrome walnut. Door of walnut; architrave of wood and color of wall. All furniture Italian originals, the chair at left being eighteenth century, based on Louis XV style. Hangings of green antique velvet with red introduced in upholstery. Ceiling height, 12 feet.



DECEMBER, 1921

THE ARCHITECTURAL FORUM

PLATE 91



MUSIC ROOM, HOUSE OF CARL DREYFUS, ESQ., BOSTON

EDWIN SHERRILL DODGE, ARCHITECT

Walls and vaulted ceiling of rough, pale gray plaster; floor of red brick and tile in small units; mantel, a cement reproduction of an Italian original. The niche in the wall has walnut doors having polychromed borders. Ceiling height, 12 feet 10 inches.



with considerable care if a consistent result would be secured. The different periods of the renaissance in Italy involved a certain definite sequence of styles, so intimately related that a chair of say the earliest might easily be found in a home of the later renaissance, but one piece of French furniture carelessly selected in a setting strictly Italian might mean a discord. Care should be taken that any mixture of styles be plainly and obviously intentional and not appear to be due to a mistake.

The furnishing of a dining room presents what is perhaps the simplest problem in any modern domestic arrangement, because the room is planned for one definite, specific purpose and because in furnishing of any type the pieces for dining room use are unmistakable and well defined. When furnishing in the Italian style the problem is unusually simple for the necessary objects are tables, sideboard and chairs and all these pieces were used during renaissance times and excellent models are available for the guidance of modern architects.

Walnut is generally used for Italian furniture; it possesses a rich and varied grain and assumes with time an especially beautiful patina. Much of the splendor of the older furniture



Modern Italian Wreath of Terra Cotta
Diameter about 30 ins.

was due to the use which the Italian wood workers made of inlay or "intarsia," which consisted of inlaying the rich surface of walnut with ivory, bone, mother of pearl and various metals, besides ebony and countless other woods which were sometimes stained or treated with chemicals to heighten the richness of the effect. Intarsia was used upon wall paneling, doors and inner shutters, and very largely upon furniture. Certain workers of the period found—just as some modern architects and decora-

tors have discovered—that much of the beauty of this form of inlaying may be had by polychrome decoration. Success depends upon the choice of an appropriate pattern, and in working it out in suitable colors. Intarsia—or its painted simulation—is useful for giving to flat, plain surfaces a high degree of interest. It may be used upon the edges of a table or *credenza* top, or for emphasizing the structural lines of other pieces of furniture, for panels or for use in bands break a monotonous surface up into smaller panels which may themselves be developed in pleasing designs worked out in the same way.

In these articles on Italian domestic interiors nothing has been said regarding the use of



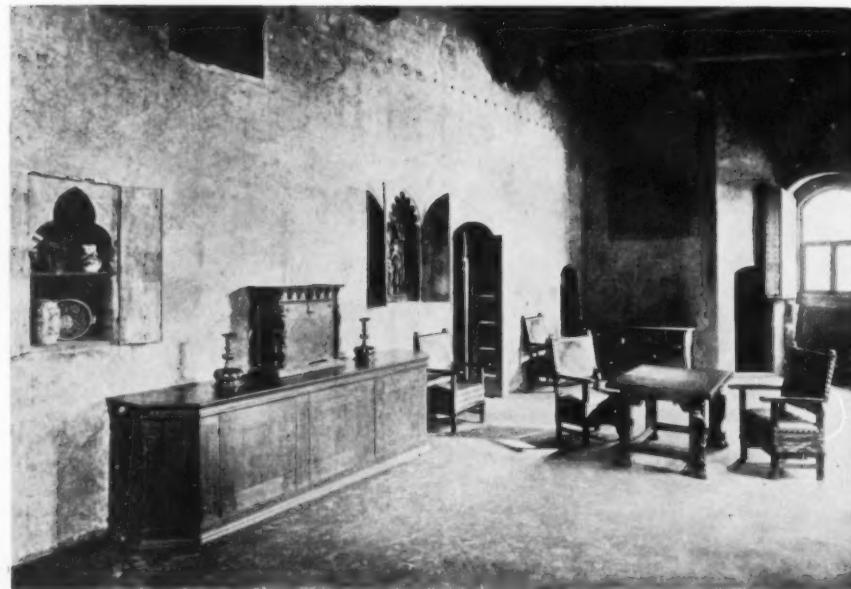
Reproduction in Marble of Antique Italian Tripod



Modern Wrought Iron Door at Mt. Kisco,
New York
Benjamin Wistar Morris, Architect



Lighting Fixture Based on Italian Candelabrum
Length, 42 ins.; spread, 20 ins.



Hall on Second Floor, Davanzati Palace, Florence
Illustrating prominent setting of Italian wall furniture

antiques, partly because the present cost of really good examples places them beyond the reach of any but the very opulent, and partly because the development in America of furniture making and similar crafts has reached a point where authoritative and entirely reliable reproductions are available, which as a rule are more satisfactory for actual use than antiques. In the matter of furniture, for example, certain manufacturers are carefully reproducing the most valuable of renaissance pieces, in many instances from great museums or private collections, and their reproductions while leaving nothing to be desired upon the score of beauty of

form and finish are made by the most reliable of modern methods which enable them to withstand the high, dry temperature of the heated American house. The same care has been used by the makers of tapestries and fabrics in general, workers in iron and other metals, terra cotta in various forms, and so through all the list of crafts the work of which enters into the making of the modern home.

The unity and architectural coherence which characterized the early renaissance domestic interior were due in a large measure to the fact that both the structure itself and its furnishings and fittings were planned or supervised by a single individual—the architect. Many of the architects of the period actually maintained workshops of their own for the production of furnishings of different kinds for their clients; while other architects, without actually possessing workrooms of their own, surrounded themselves with trained workers in all the many crafts who were skilled in interpreting or developing suggestions or plans supplied by the master. Thus every architect had about him a highly accomplished company all working in close co-operation. The result was a degree of architectural and decorative harmony scarcely approached in later times.



Reproduction of Florentine Credenza from Davanzati Palace Collection
Made of walnut; first half of sixteenth century. Length, 61 ins.; height, 32 ins.; depth, 23 ins.

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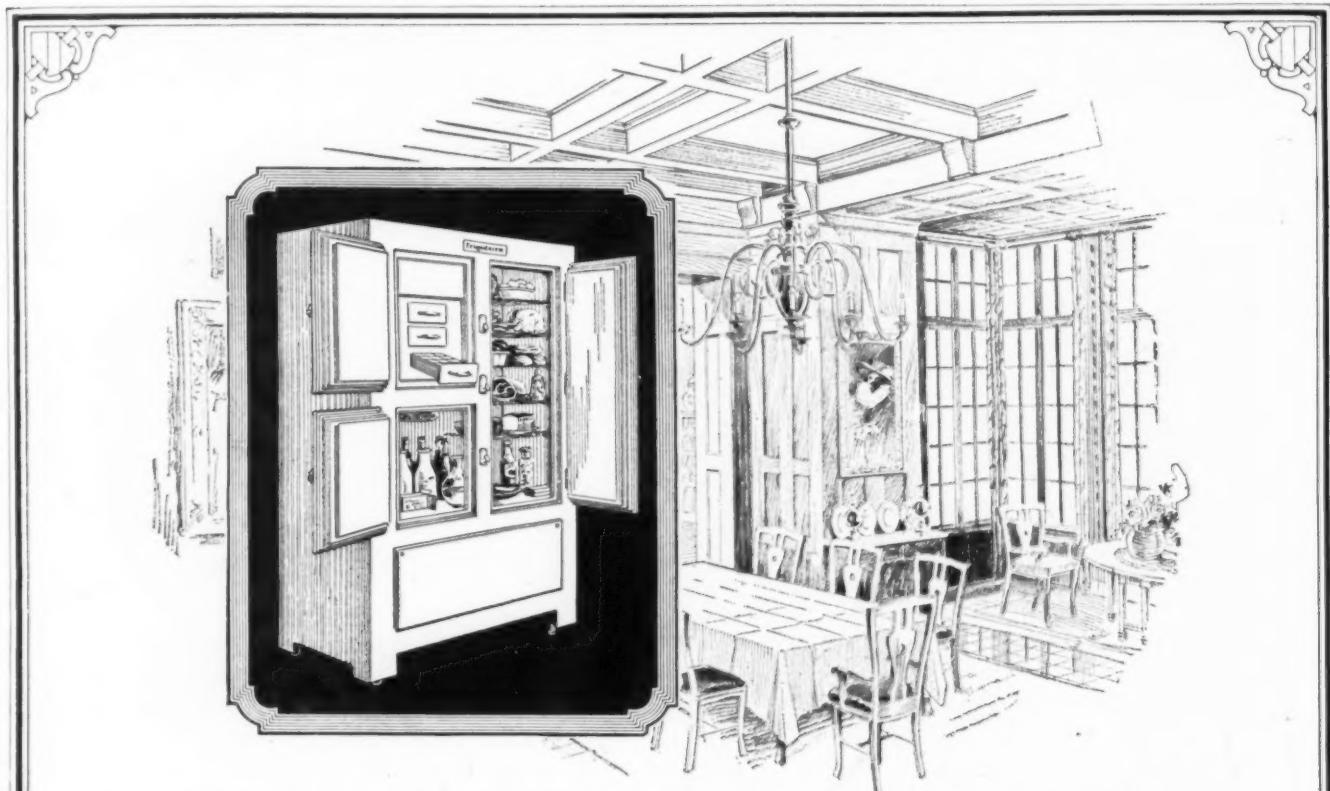
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Architectural flexibility, expressed in little details of this kind, is characteristic of Atlantic Terra Cotta.

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this church including
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DETAIL of lower stories, the Webster Hotel, at Webster Avenue and Lincoln Park West, Chicago, Illinois; W. W. Ahlschlager, Architect.

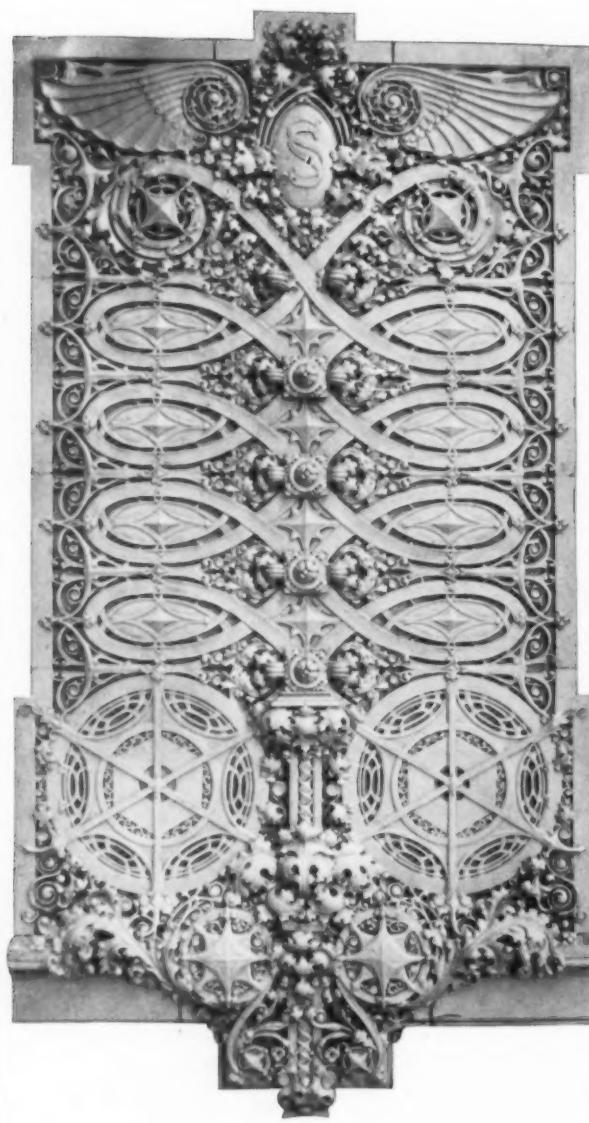
"Northwestern" enamel terra cotta of a light pink granite shade was selected for facing of the lower and upper stories and trim of this building, harmonizing in color with the brick facing of the intermediate stories.

Note the delicate detail of the ornamental features, the perfect alignment of courses and the excellent job of jointing and setting.

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Detail of typical ornament for the panels, pier caps, inserts and other features for the

South Side Bank, Buffalo, New York
Harold J. Cook, Architect

The relief is accentuated by the use of Polychrome in colors of gray, red, blue, green, black and buff

The architect writes: "*I do not know when I have ever seen work executed any better.*"

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Terra Cotta in light gray speckled color affords the chief architectural ornament to this dignified municipal building

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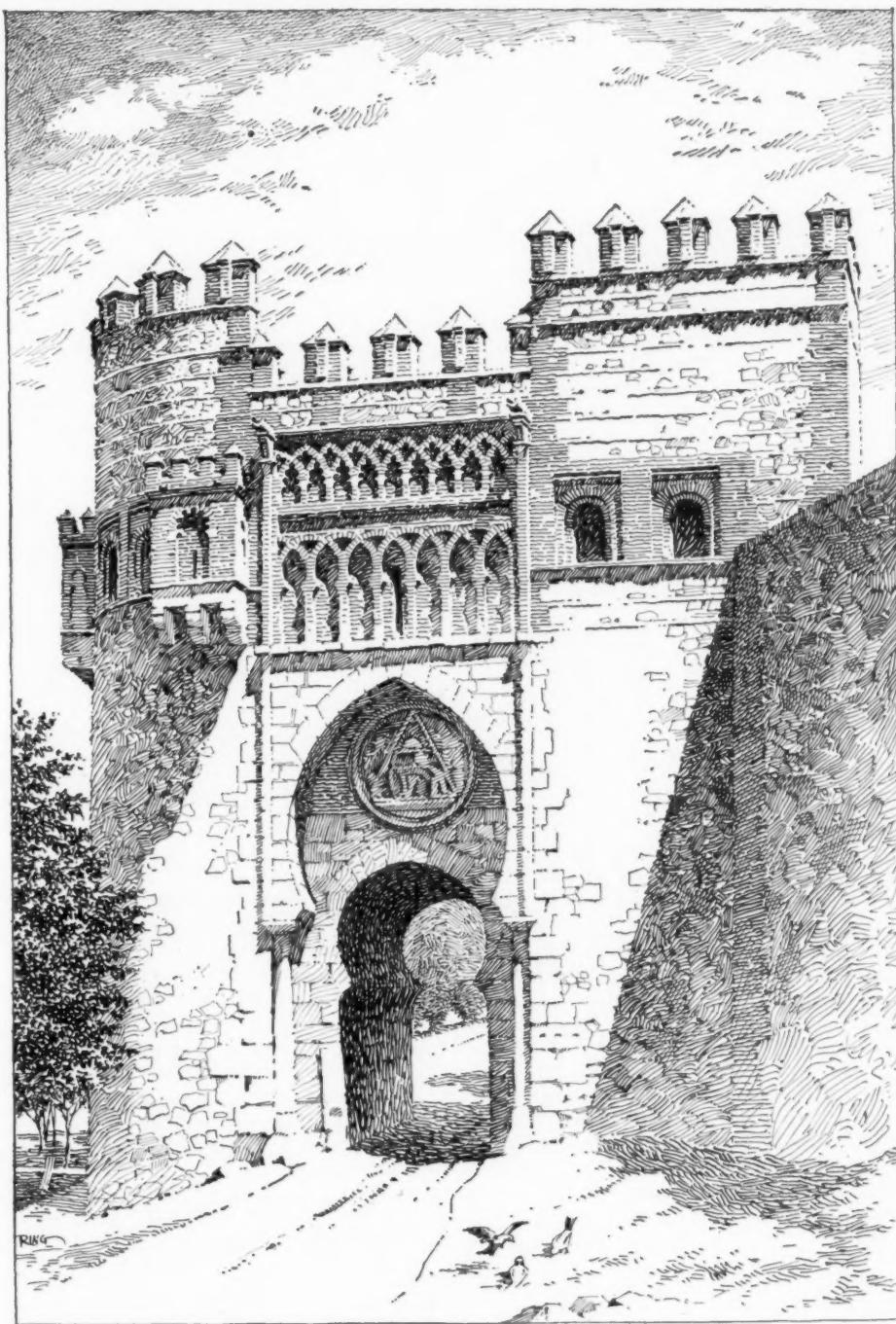
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Doric and Gothic Stippled Brick

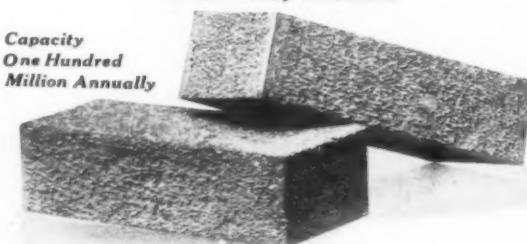
The Doric shades comprise six tones of buffs and tans, ranging from beautiful delicate buffs with a pinkish tinge to very dark purplish browns and black. The Gothic shades offer rich colorful reds and browns in five variations,—red with subtle old rose tints, brownish red mixtures, dark rich browns, very dark browns and black.

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1st YEAR

DECEMBER 1921

Edited by William Carver, Architect

Brick Veneer is a Pretense

Costs as much as good construction

Reliable manufacturers of brick, anxious to have brick used only in ways that will reflect credit on their material, condemn veneer on frame.

*“In architecture another and a less subtle, more contemptible violation of truth is possible; a direct falsity of assertion respecting the nature of material.”

It is natural to expect that a building apparently of brick will have the attributes of a brick building—permanence, strength, fire-resistiveness, etc. These qualities are not possessed by brick veneer on frame. It pretends to a worth that it does not have. It pretends to be what it is not.

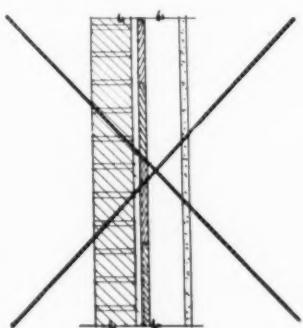
*“Leave your walls as bare as a planed board, or build them of baked mud and chopped straw, if need be, but do not rough cast them with falsehood”

John Ruskin—

“The Seven Lamps of Architecture”

Experienced Building Official on Brick Veneer

Reporting recently on this type of construction which had been proposed for two-story schools, a building official of a western city has this to say:



BRICK VENEER ON FRAME
NOT FIRE-RESISTIVE FROM INSIDE
DIFFICULT TO FIGHT FLAMES
MAY COLLAPSE ON FIREMEN
NON-PERMANENT
DECEPTIVE, UNSOUND CONSTRUCTION

“I find the type of building recommended in said document (brick veneer on frame) is a dangerous type of construction for the following reasons:

“Should an earthquake occur during recess or while children were playing on the grounds, the veneering would shake off and, no doubt, seriously injure many of the children.

“A solid masonry wall will confine a fire for more than a day, and about one hour is the limit to the veneered wall. Also, when fighting a fire the studs burn through and the veneering collapses, making it very dangerous to firemen.

“Worst of all, veneered buildings are subject to dry rot. In all of my experience I have yet to find a veneered building twenty years old which has

not been subject to dry rot or has much structural value left.

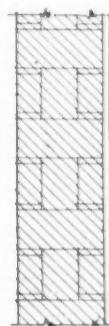
“Under favorable conditions a brick veneered building does well to last twenty years. Many reach initial failure before this time. In fact under ordinary conditions the housing of children in any two-story veneered building which has stood sixteen to eighteen years is a dangerous undertaking.

“With the above in mind I cannot recommend a veneered building. Also, many of the bonds are issued for a period of forty years, yet the veneered school building will scarcely last twenty years at best.”

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For data on Ideal Wall and other information on brick, see Sweet's Architectural Catalog, 1921, pages 107-114. The Common Brick Industry of America, 1309 Schofield Building, Cleveland, Ohio.



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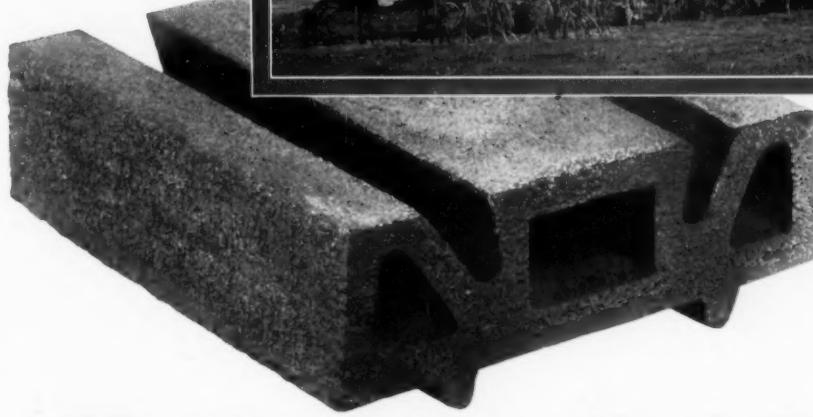
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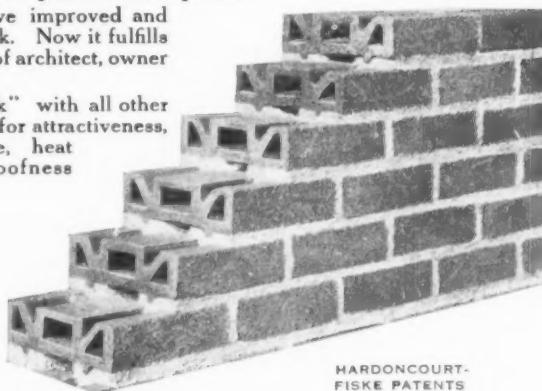
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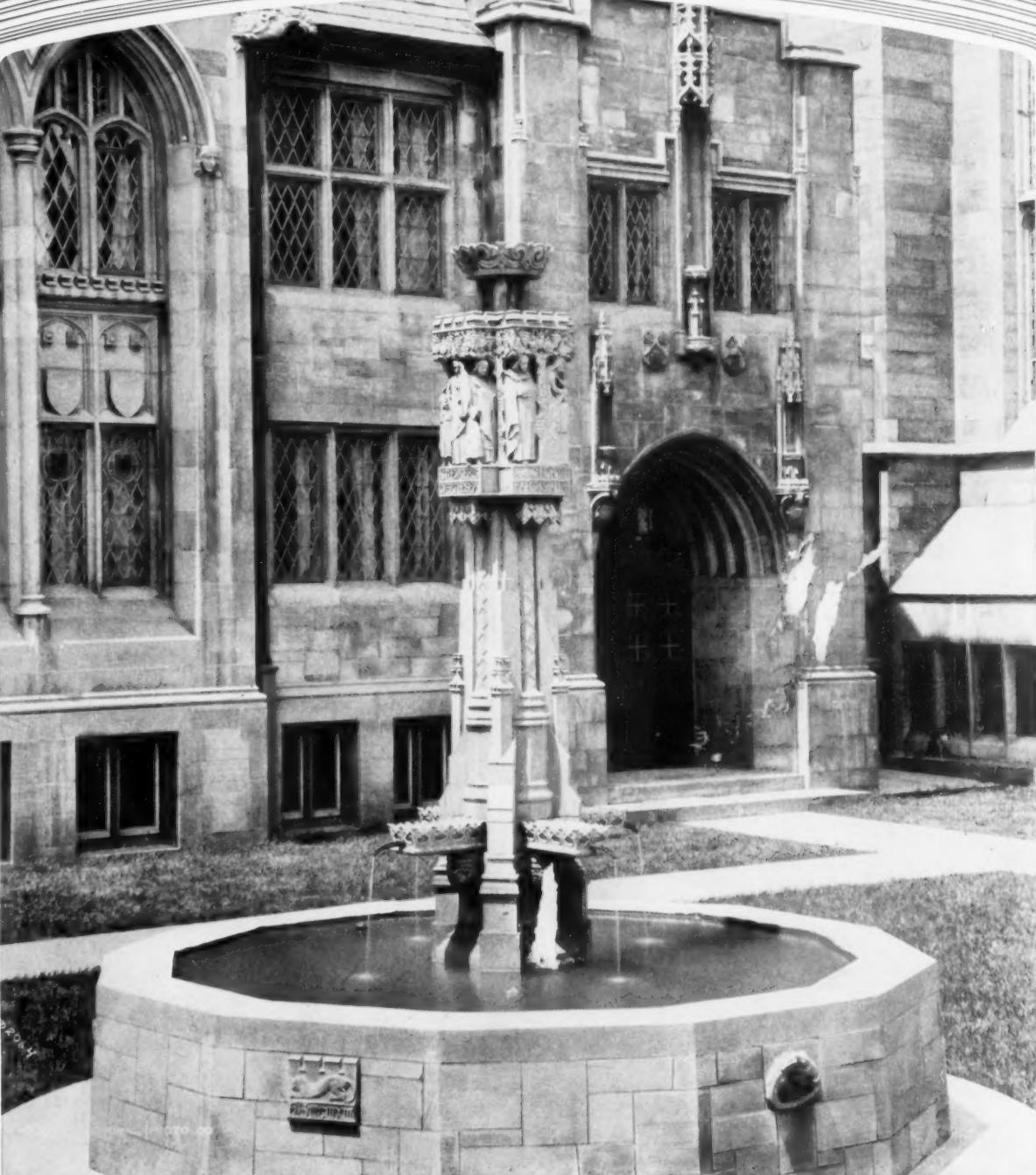
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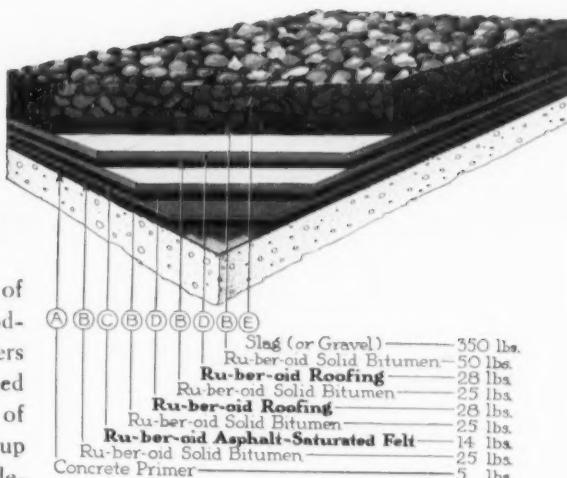
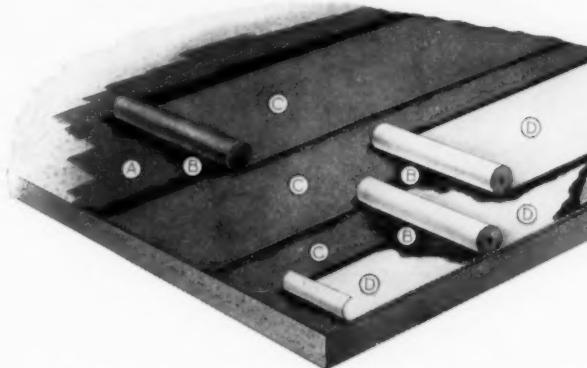
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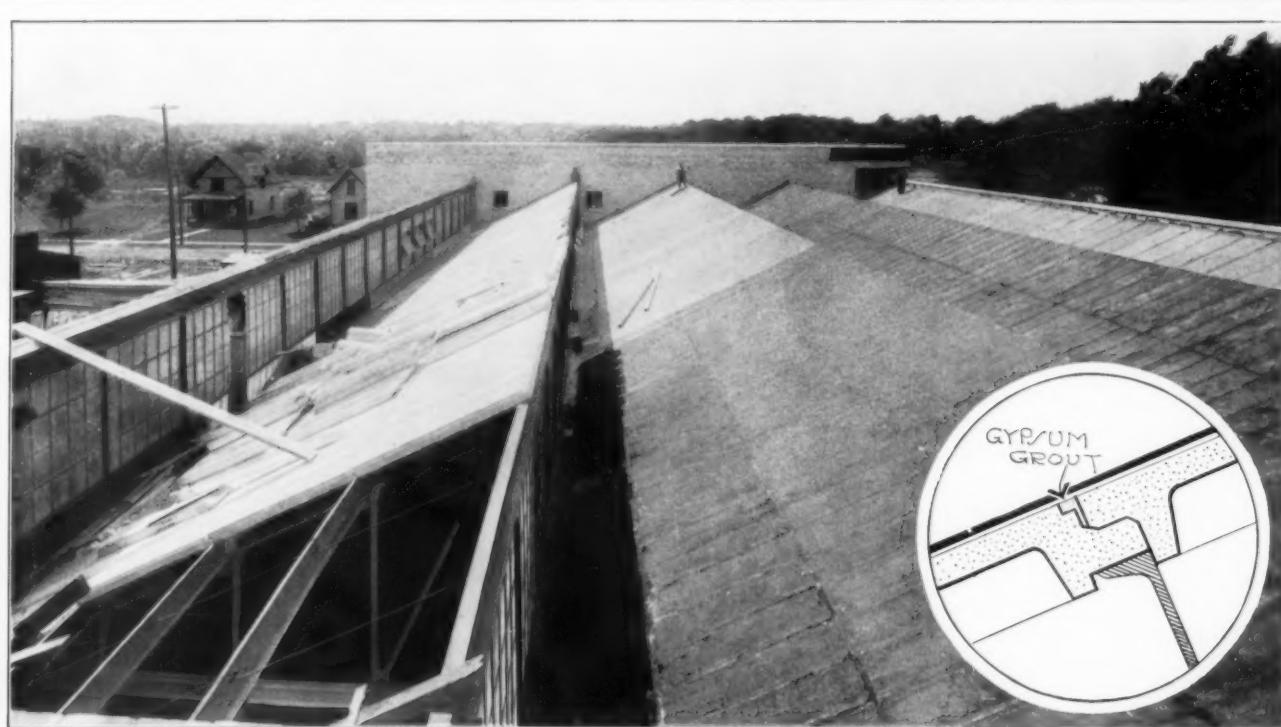
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4. His living depends on your satisfaction. If you are not satisfied, you will neither specify nor accept his material. It is the architect who determines whether he can sell it or not, and the producer knows it.
5. The honest craftsman's pride is in every man's breast, apart from questions of pecuniary advantage. But he knows full well that if every job is one of which he may justly be proud, his position in the market is secure.
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THE ARCHITECTURAL FORUM

VOLUME XXXV

NUMBER 6

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ALBERT J. MacDONALD, Editor

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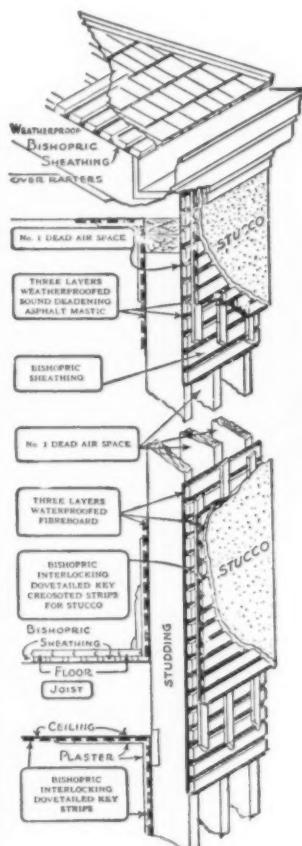
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THE EDITOR'S FORUM

RECORDS POINT TO CONTINUED BUILDING

WE are all hopeful that the close of this year sees the end of the depression which has so steadily affected the building industry, and we feel that there is ample justification for an optimistic outlook toward the immediate future because of the favorable conditions that manifested themselves in the fall months.

Contracts awarded in September proved that to be a record month in building statistics, not only for this year but for a period of ten years past. The activity thus started was maintained through October, when it is usual to expect a seasonal decline. The construction put under contract in October in the Northeastern states covered by the reports of the F. W. Dodge Co. amounted to \$222,480,000, which is an increase of 25% over October, 1920, and but 10% under the total for September, the record month. Of this work, residential building leads with 40% of the total and business buildings constitute 17%, which is a very good showing for this class of work. A decided increase of activity was noted in industrial building during October, the figures amounting to \$18,419,000, showing an increase of 63% over September for this type of construction. The contemplated new work reported in October was 24% greater than in September, which indicates a steadily growing interest in building that promises a substantial rate of activity during the winter months and a period of vigorous development in the spring.

AN EARLY AMERICAN RESTORATION

IN the early architecture of our country we have a heritage that we are recognizing as of more and more value as the years go on. Many of the old houses and civil buildings erected by the colonists have been permitted to fall into decay or have been utterly spoiled by the changes of later generations. By degrees some of the more important buildings are fortunately being restored by thoroughly capable architects, and this work is adding greatly to our fund of knowledge relating to the early builders and their methods.

It is of more than ordinary interest to find such a scholarly piece of restoration as that accomplished by Griffin & Wynkoop, architects, of New York in "York Hall," the home of Governor Nelson at Yorktown, Virginia. This building is of particular interest because of its Georgian character and the fact that its interior woodwork was in a sufficiently well preserved condition to enable the architects to carry out the new work in the exact spirit of the old, even to a very careful restoration of the original interior color schemes based on the English use of glazed colors so widely employed at the time.

GRAND PRIX MEN FOR PROFESSORS

TWO distinguished French architects, Albert Ferran and Jean Jacques Haffner, both of them winners of the *Grand Prix de Rome*, one of the highest honors to which architects aspire, have accepted invitations to this country to teach. M. Ferran will have charge of design at the Massachusetts Institute of Technology, where he will hold a professorship, while M. Haffner will be professor of design at the School of Architecture at Harvard.

Upon their arrival it was said that Boston will be the only place in the country where two *Grand Prix* winners are united in teaching architecture in schools which co-operate closely.

LE BRUN TRAVELING SCHOLARSHIP

THE program for the next Le Brun Traveling Scholarship Competition will be issued about January 1, 1922, calling for drawings to be delivered about March 1, 1922. Fourteen hundred dollars is awarded the winner to aid him in paying the expenses of a European trip.

Any architect or architectural draftsman, a citizen and resident of the United States, not under 23 or over 30 years of age, who shall for at least three years have been either engaged in active practice, or employed as an architectural draftsman and who is not and has not been the beneficiary of any other traveling scholarship, is eligible to compete.

Every competitor must be nominated by a member of the American Institute of Architects. Nomination blanks can be had of the Secretary of any Chapter, A. I. A., or of the Le Brun Scholarship Committee. Nominations should be sent so as to be received before January 1, 1922, to Le Brun Scholarship Committee, 215 West 57th street, New York, Julian Clarence Levi, Chairman.

ARCHITECTURE IN COMMERCIAL BUILDING

THIS quotation is from a paper by Walter W. Cook, Chief of the Architectural Department of Lockwood, Greene & Co., well known for their buildings in the textile and other industrial fields. It briefly sets forth an intelligent way of establishing a common ground of understanding between the architect and the business-man client.

"The architect must, to my mind, sit down with the owner and talk dollars and cents at the start and determine what the client is willing to spend for exterior treatment of his building—especially for a commercial building. At the same sitting, the architect must set forth the facts which are becoming more evident every day—that the proper treatment of any building is worth dollars and cents to a client for advertising value as well as for the morale of his business."



How We Start Right Right At The Start

Now, let me make that clear.

On the right start, right at the start, depends what you get when the job is done.

And the right start cannot be made without the right thought — can it?

Well, then, the starting thought with me is — the wood must be dry. If it isn't, your partition will crack and jeer at you, and down in the cellar she'll eventually go to feed the boiler.

What, then, makes for dry wood?

In the first place, it must be selected and collected a little at a time, by the mills, to meet our exacting standard.

There it is, car after car of it, piled in the air for three months at least.

That makes air-dry lumber.

Air-dry lumber, however, will not do for cabinet work.

During the war, to safeguard the lives of his aviators, Uncle Sam devised an intricate method of kiln-drying lumber for aeroplanes. We use exactly the same method but go him one better, for after another month in the kiln, the lumber is piled in the factory, which brings it to the moisture content of your office.

So, when I say Telesco Partition is dry before you get it, I mean just that. It means that I do my part before it is ever manufactured, not after it is set up in your office.

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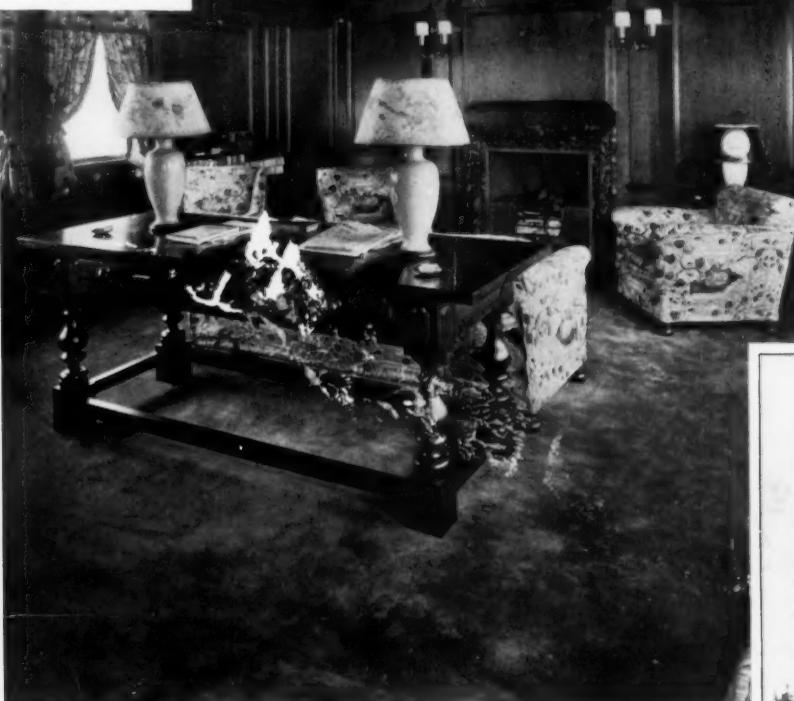
All these furnishings were especially designed and made by hand to meet the requirements of a yacht.

Our decorators and designers will be pleased to talk over plans for executive offices and clubs, as well as for private homes, with you or your clients without obligation.

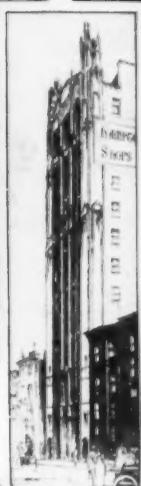
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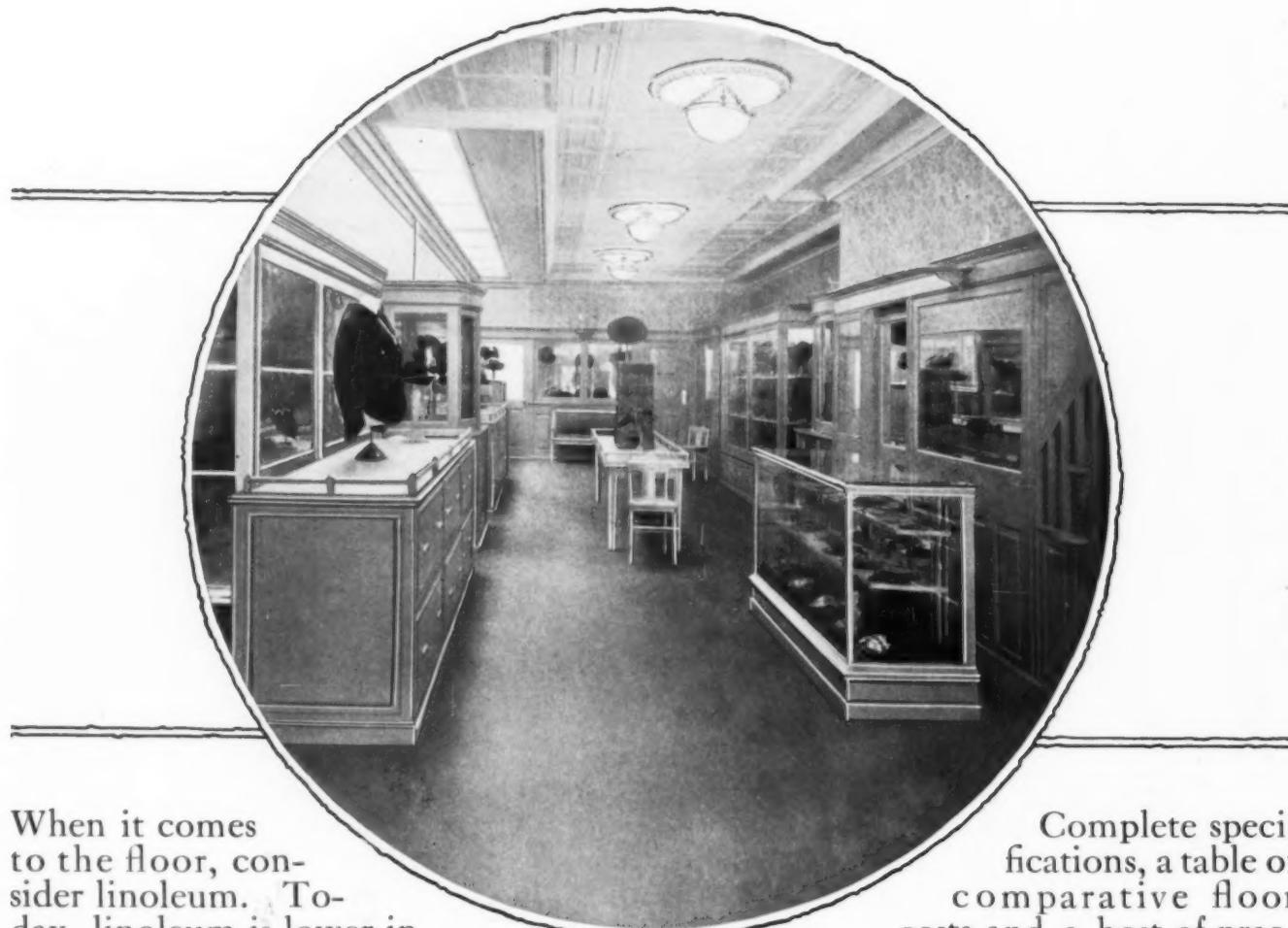


This saloon of the "Nourmahal", especially designed and built for Mr. Vincent Astor, suggests dignified, simple comfort in every detail. All furnishings of this yacht were designed and executed by Hampton Shops in co-operation with Mr. Charles A. Platt, Architect.



The Hampton Exhibits occupy this entire building. No branches or associated companies.

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Complete specifications, a table of comparative floor costs and a host of practical suggestions, including colorplates, will be found in the book, "Business Floors." A copy will be gladly sent you free on request. As a reference for color notes, floor data, etc., it is a worth-while addition to your library.

Armstrong Cork Company

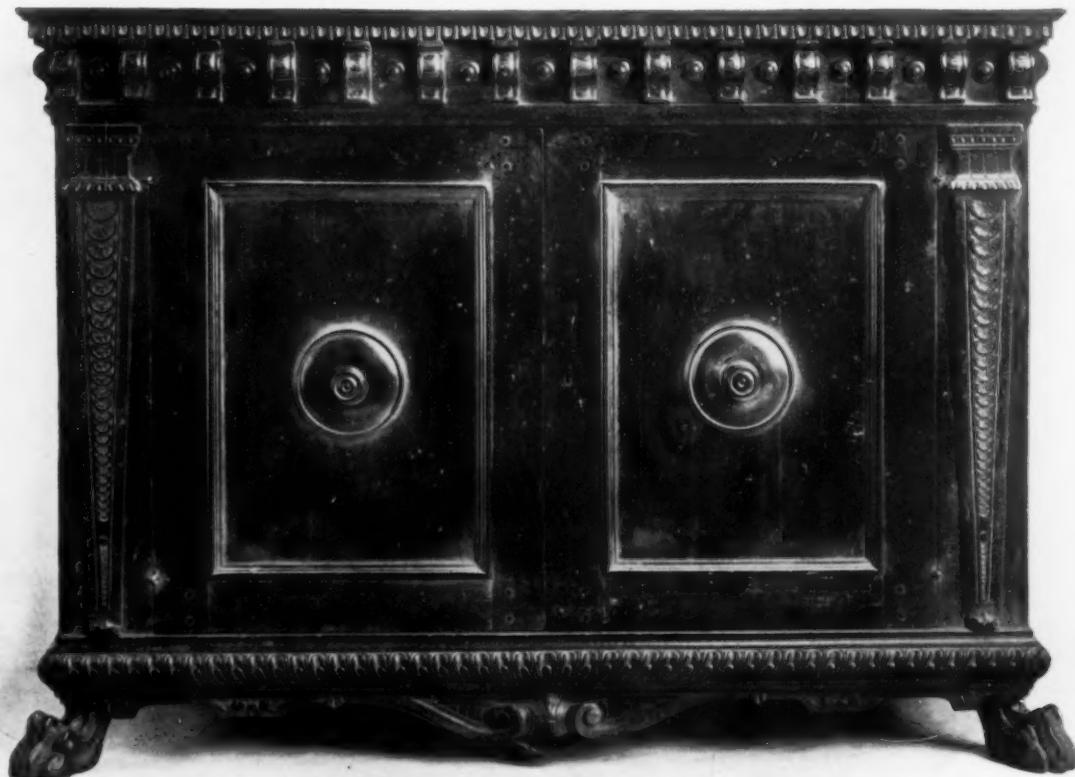
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KENSINGTON FURNITURE



Italian Renaissance walnut credenza, by Kensington

THE credenza we illustrate above, from a cabinet in the Bardini collection, dates at the beginning of the second period of the Renaissance, as is indicated by the touch of the baroque in the ornamental scroll under the base moulding, the bracket ornaments of the frieze, and the form of the semi-classic pilasters. These baroque elements, which were destined through exaggeration to bring the style into a sad decadence in this restrained use give an agreeable warmth and relief from the formality of which we are conscious in the classic purity of much of the work in the first period of the style.

Architects interested in completing the interiors they design with furnishings harmonious in both character and quality are cordially invited to avail themselves of the service of the Kensington Showrooms and personnel

Correspondence solicited

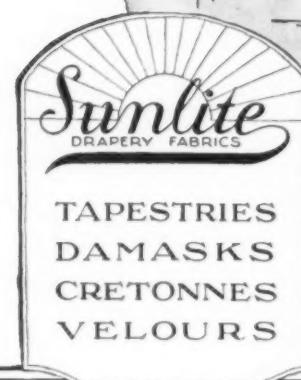
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MANUFACTURERS AND IMPORTERS
FINE FURNITURE AND ART OBJECTS
NEW YORK

"A Scene in Southern France," our number sixteen panel, to be had with or without border, in a size sixty by seventy-two inches.

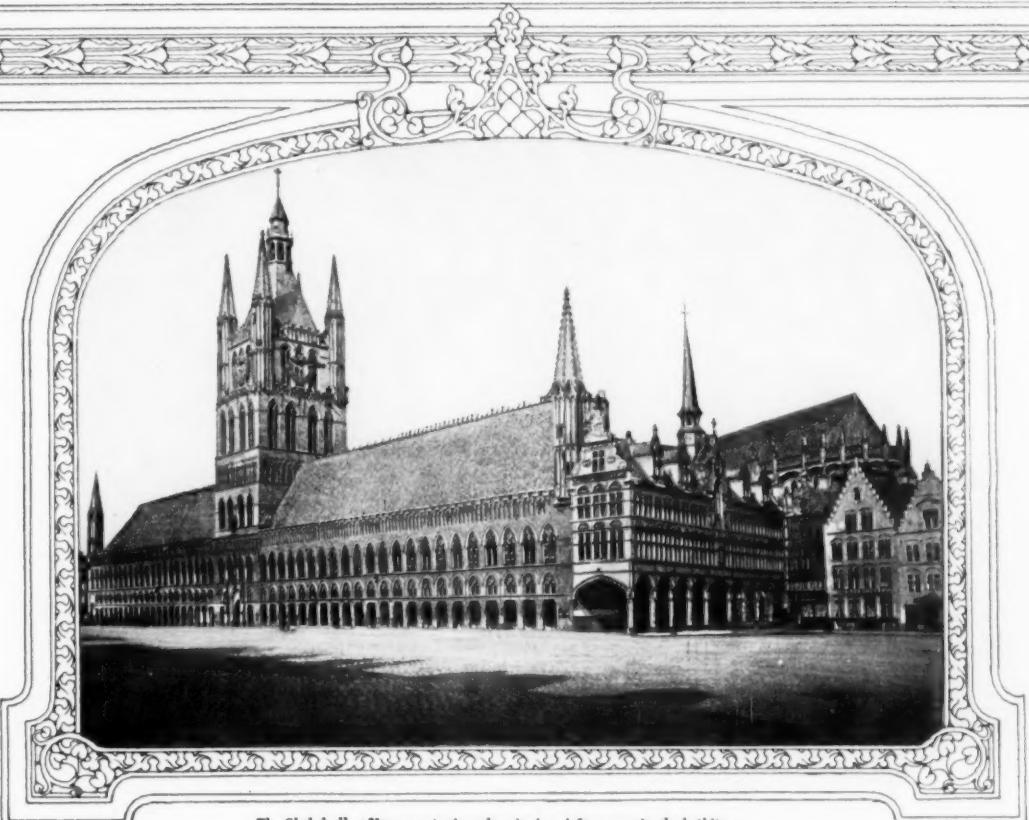
Similar scenes in different sizes if desired



YOU may view in our showrooms tapestry panels of many periods which portray an exceptional variety of subjects and scenes. Our designs are fashioned in all qualities of wool, cotton and antique materials, in different sizes to suit your individual needs. We have always on hand needlepoints, original and imitation; also chair seats and backs in different weaves. Our showrooms are at your service.

M. H. ROGERS INC.
912 - 920 BROADWAY NEW YORK





*The Cloth-hall at Ypres required one hundred and four years in the building.
Yet it was destroyed almost in a day!*

CLOTH-HALLS—FROM MINCING LANE TO FLANDERS

THEY "had a hall in Mincing Lane"—the Company of Clothworkers in London—which was one of the many cloth-halls throughout Europe, particularly Flanders and England, during the 13th Century. Here the productions of the weavers were stored, checked, and sold.

It was in Mincing Lane that King James I, "the wisest fool in Europe," was admitted to the freedom of the Company, in the following manner: "Sir William Stone," said he, "wilt thou make me free of the Clothworkers?" "Yea," quoth the Master, "and think myself a happy man that I live to see this day." Then the King said: "Stone, give me thy hand, and now I am a Clothworker."

Thus did His Pedantic Majesty become a member of the amalgamated guilds of Fullers and Shearmen—the craft of the latter consisting of "shearing" the cloth or levelling the nap. After the Great Fire, when the original hall was burnt down, a "noble rich" building took its place.

"Noble rich," too, were the cloth-halls in Flanders, at Ypres, Bruges, and Ghent; materializing the pride and wealth of successive generations of merchants and manufacturers. Secular organizations received the tribute of wealth through the ministry of art—there was proof of joyful workmanship and a jealous maintenance of the highest possible standards. Chieftest in artistic value was the *Cloth-hall at Ypres*—huge, rich in its simplicity and elegant in its symmetry—an impressive monument to the industrial prosperity of the Middle Ages. But little now remains of the building, ground under the iron heel of war; yet there is an echo still of the artistry of its joyful workmanship. . . .

It lives today in the jealous maintenance of its own crafty standards; for in their Decorative and Upholstery Silks, Cheney Brothers have evolved qualities of design and workmanship that speak the prideful spirit of the guild itself.

CHENEY BROTHERS
4th Avenue at 18th Street, New York

CHENEY
SILKS

© 1921, Cheney Brothers



QUARTERED OAK PANELING
SALOON PASSENGERS' LOUNGE
CUNARD BUILDING, NEW YORK CITY

Benjamin Wistar Morris
Architect
Carrere & Hastings
Associated Architects

MATTHEWS BROTHERS
MANUFACTURING COMPANY
ARCHITECTURAL WOODWORK

Established 1867

52 VANDERBILT AVE., NEW YORK
MILWAUKEE, WISCONSIN



1949-Y



3010-Y



NUMBER 3143-Y



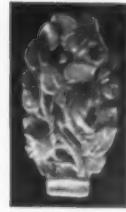
3009-Y



1982-Y



G-4



G-2



1987-Y

WHEREVER marble, cement, plaster or tile is used in the home Rookwood fountain backs and Rookwood decorative inserts offer limitless possibilities of embellishment.

Rookwood makes many distinctive and beautiful small things for the home, such as bowls, vases and candlesticks.

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Architectural Dept.

Cincinnati, Ohio



3140-Y



1879-Y



1719-Y



NO. Q-2



1721-Y



1950-Y



3141-Y

*Gold-Seal Linoleum laid by
P. W. Burnham & Co.,
New York.*



Gold-Seal Battleship Linoleum on the floor of a private office of W. R. Grace & Co.



One of the larger offices.



An outer office, showing fabric rug on a background of Gold-Seal Battleship Linoleum.

The Modern Floor for the Modern Office

NO. 10 HANOVER SQUARE, New York City, might almost be called headquarters of America's foreign trade. For it is the home of W. R. Grace & Co., operating all over the world, wherever American goods are marketed or foreign goods obtained for American consumption.

Throughout this entire building, the floors are covered with *Gold-Seal Battleship Linoleum*—durable, sanitary, economical—from every viewpoint *the modern floor for the modern office*.

Gold-Seal Battleship Linoleum is resilient and restful to walk upon. It does away with the nerve-racking clatter of hurrying footsteps, and gives instead an atmosphere of quiet efficiency. It is attractive in appearance, whether used uncovered or as a background for fabric rugs. Its durability and ease of cleaning make it extremely economical.

Made to conform to the rigid specifications of the U. S. Navy for use on the decks of naval vessels, the *Gold-Seal* brand is genuine battleship linoleum of the very highest quality. As positive assurance of this high quality all *Gold-Seal*

Battleship Linoleum carries the famous *Gold-Seal* Guarantee, which says and means: "Satisfaction Guaranteed or Your Money Back."

Gold-Seal Cork Carpet

When absolutely noiseless floors are desired, we recommend *Gold-Seal Cork Carpet*. It is springy and resilient—as quiet underfoot as a heavy woven rug. Made in 6 attractive shades. Guaranteed by the *Gold-Seal* Guarantee.

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IMPORTANT

*For best results and maximum service, *Gold-Seal Battleship Linoleum* should be laid by experts. Incorrect laying may cause serious trouble. Let us send you copies of our *Gold-Seal* Specifications for Laying Linoleum and Cork Carpet and samples of these floorings.*



GOLD SEAL Battleship Linoleum

(THE FAMOUS FARR & BAILEY BRAND)

Made According to U.S. Navy Standard



Main saloon on Mr. Vincent Astor's yacht "Nourmahal." Furniture and paneling in American Walnut.

Quite naturally—

American Walnut was selected for the interior woodwork, paneling and furniture in Mr. Astor's super-yacht, "Nourmahal."

Because of its beautiful color, handsome grain, enduring properties (freedom from warping, shrinking or splitting) American Walnut is the first choice of people of discriminative taste for the adornment of their homes —afloat or ashore. "The Cabinet-wood Superlative."

"The Walnut Book"—illustrated—contains much interesting information about this "Cabinet-wood of the Ages." Free upon request. Will you send us your name?

American Walnut Manufacturers' Association
Room 1000, 616 South Michigan Boulevard, Chicago



PIPE ORGANS FOR SPECIFIC PURPOSES

There are at least five kinds of buildings in which pipe organs may be installed—

- Churches
- Theatres—*moving picture and other*
- Concert Halls
- Hotels
- Residences

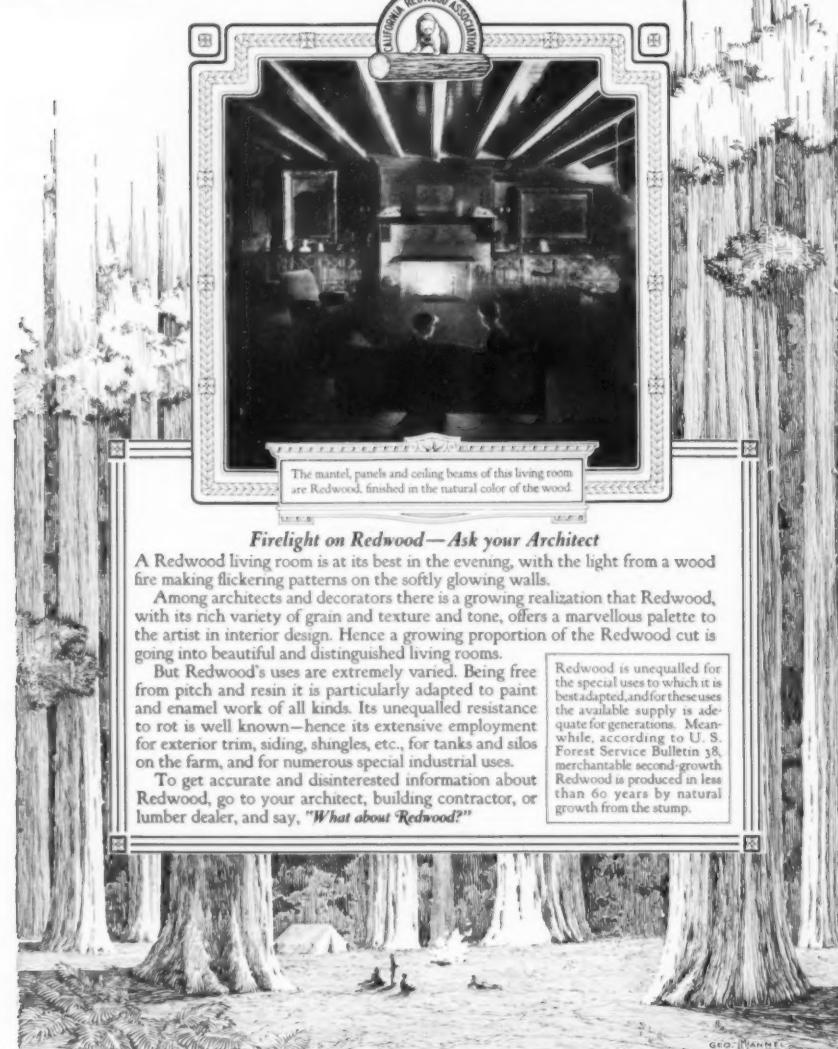
An architect may be called upon from time to time to advise on an organ for any one of these structures.

We want to convince you that we, a firm of organ builders with seventy-five years' experience, with examples of our work in buildings of all five kinds all over this country, with a well equipped factory, staffed with both artisans and artists who understand the pipe organ structurally, musically and artistically, are at your service to furnish advice, information, experience and co-operation of every sort, if you have a client who wants a pipe organ for any purpose.

ESTEY ORGAN COMPANY

Brattleboro, Vermont

CALIFORNIA REDWOOD



Firelight on Redwood—Ask your Architect
A Redwood living room is at its best in the evening, with the light from a wood fire making flickering patterns on the softly glowing walls.

Among architects and decorators there is a growing realization that Redwood, with its rich variety of grain and texture and tone, offers a marvellous palette to the artist in interior design. Hence a growing proportion of the Redwood cut is going into beautiful and distinguished living rooms.

But Redwood's uses are extremely varied. Being free from pitch and resin it is particularly adapted to paint and enamel work of all kinds. Its unequalled resistance to rot is well known—hence its extensive employment for exterior trim, siding, shingles, etc., for tanks and silos on the farm, and for numerous special industrial uses.

To get accurate and disinterested information about Redwood, go to your architect, building contractor, or lumber dealer, and say, "What about Redwood?"

Redwood is unequalled for the special uses to which it is best adapted, and for these uses the available supply is adequate for generations. Meanwhile, according to U. S. Forest Service Bulletin 38, merchantable second-growth Redwood is produced in less than 60 years by natural growth from the stump.

This advertisement is appearing in the December issue of Atlantic Monthly, Century, Harper's, Scribner's, The Review of Reviews and World's Work.

THIS advertisement is written with just one purpose in mind: to send prospective home-builders to their logical technical advisers—the architect, the building contractor and the lumber dealer—with a question: "What About Redwood?" You can answer this question, and it is your opportunity to secure a client or a customer. Complete information, prices and specifications may be obtained by addressing any of the sales and distributing branches listed below.

SALES AND DISTRIBUTING BRANCHES

Redwood Sales Company (representing six producing companies*) Exposition Bldg., San Francisco, California.

John D. Mershon Lumber Company, (agent), 803 Flatiron Bldg., New York City.

A. C. Dutton Lumber Corporation, (agent), Springfield, Mass.

The Pacific Lumber Company, 311 California Street, San Francisco, and Central Bldg., Los Angeles, California.

The Pacific Lumber Co., of Illinois, 522 Fifth Avenue, New York City; McCormick Bldg., 322 So. Michigan Ave., Chicago, Ill.; Grand Ave., Temple Bldg., Kansas City, Mo.

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MEMBER COMPANIES (San Francisco Offices)

*Hobbs, Wall & Company

*Holmes, Eureka Lumber Company

Union Lumber Company

*Albion Lumber Company

*Little River Redwood Company

*Northwestern Redwood Company

†Glen Blair Redwood Company

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"MORGAN-QUALITY"

STANDARDIZED WOODWORK

MORGAN-QUALITY stands for fine designs, beautiful workmanship and high grade lumber.

So perfectly is Morgan-Quality Woodwork finished that no time is lost in fitting. Each job goes together perfectly.

Yet Morgan-Quality costs nothing extra.

Have you the current issue of the Price Supplement? If not, we will be glad to supply you. Address nearest office Dept. X-12.

There is no
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Dutch Boy

Products for Interior Painting

NATIONAL LEAD COMPANY

New York Boston Buffalo Chicago
Cincinnati Cleveland St. Louis San Francisco

JOHN T. LEWIS & BROS. CO., Philadelphia
NATIONAL LEAD & OIL CO., Pittsburgh

IT is never surprising to find the walls and woodwork of such rooms as this painted with Dutch Boy White-Lead and Flatting Oil. This paint is specified when a particularly soft and velvety finish is desired. Costs no more than other paint; spreads 50 per cent farther than most, and can be tinted any color. That it is washable, and will not crack or chip, is important too.

If you wish, we will send you Booklet No. 2.

"Save the surface and
you save all" Paint & Varnish





USED 4D 5B & 6B
FABER PENCIL

Four Books on The ITALIAN Renaissance



INTERIORS, FIREPLACES AND FURNITURE OF THE ITALIAN RENAISSANCE. By Harold D. Eberlein.

One hundred and seventy examples (selected chiefly from the sixteenth century) of interiors, fireplaces, furniture, candelabra, etc., make this book one of unusual reference value to architects and interior decorators. Many of the illustrations are from photographs of originals now in the important museums of Europe.

One volume, $9\frac{1}{2} \times 12\frac{1}{2}$ inches. Bound in buckram

PRICE, \$13.50

ORNAMENTAL DETAILS OF THE ITALIAN RENAISSANCE. By Arthur L. Blakeslee.

This book has been compiled with the object of providing a moderate priced volume, of convenient size, presenting in compact form a series of drawings illustrating the architectural detail of the best period of the Italian Renaissance, and it is believed that it will meet a long-felt want.

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MORE SMALL ITALIAN VILLAS AND FARM HOUSES. By Guy Lowell.

This new book, containing more Italian villas and farm houses, is composed of a second collection of valuable photographs made by Guy Lowell, architect. It is an important contribution to the study of Italian domestic work which is so full of suggestion to the designer of country houses today. The book was made possible through the opportunities that Mr. Lowell enjoyed in his association with the Red Cross during the war to visit portions of Italy and see buildings usually not available to the student and traveler.

Bound in buckram. 140 plates, size 12×16 inches

PRICE, \$25.00

MONOGRAPH OF THE MASSIMI PALACE

This book was first published in Paris in 1818 and original copies are rare and expensive. This reprint, which has been most carefully prepared, gives architects a comprehensive presentation of the detail of this superb example of Peruzzi's art. The illustrations comprise carefully measured, exquisite drawings of the plans, facades, sections, ceilings, mouldings, woodwork, etc. The little Palace Massimi, better known as Palazzo Pirro, is equally well shown in the same volume.

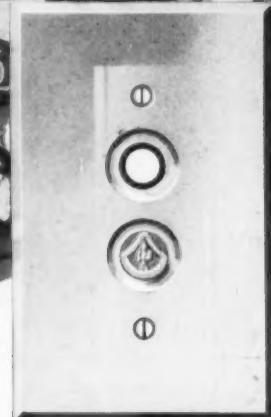
Portfolio, 13×17 inches, 40 plates

PRICE, \$10.00

ROGERS AND MANSON COMPANY

Publishers of THE ARCHITECTURAL FORUM

142 BERKELEY STREET, BOSTON, MASS.



*Arrow Adjustable Electrolier
Push Switch*

Three switches in one

THE Arrow Adjustable Electrolier Switch is a typical example of the refinement of modern wiring devices. It controls two or three circuits from a single outlet more conveniently than if three switches were installed in various parts of the room.

These switches take the standard push switch plates and boxes and can be furnished

with radium luminous indicating handles and, if desired, in lock type.

Architect's Service Department

This department has been organized to furnish a real help to architects in providing electrical wiring specifications that will include the latest and best development in the field of wiring devices.

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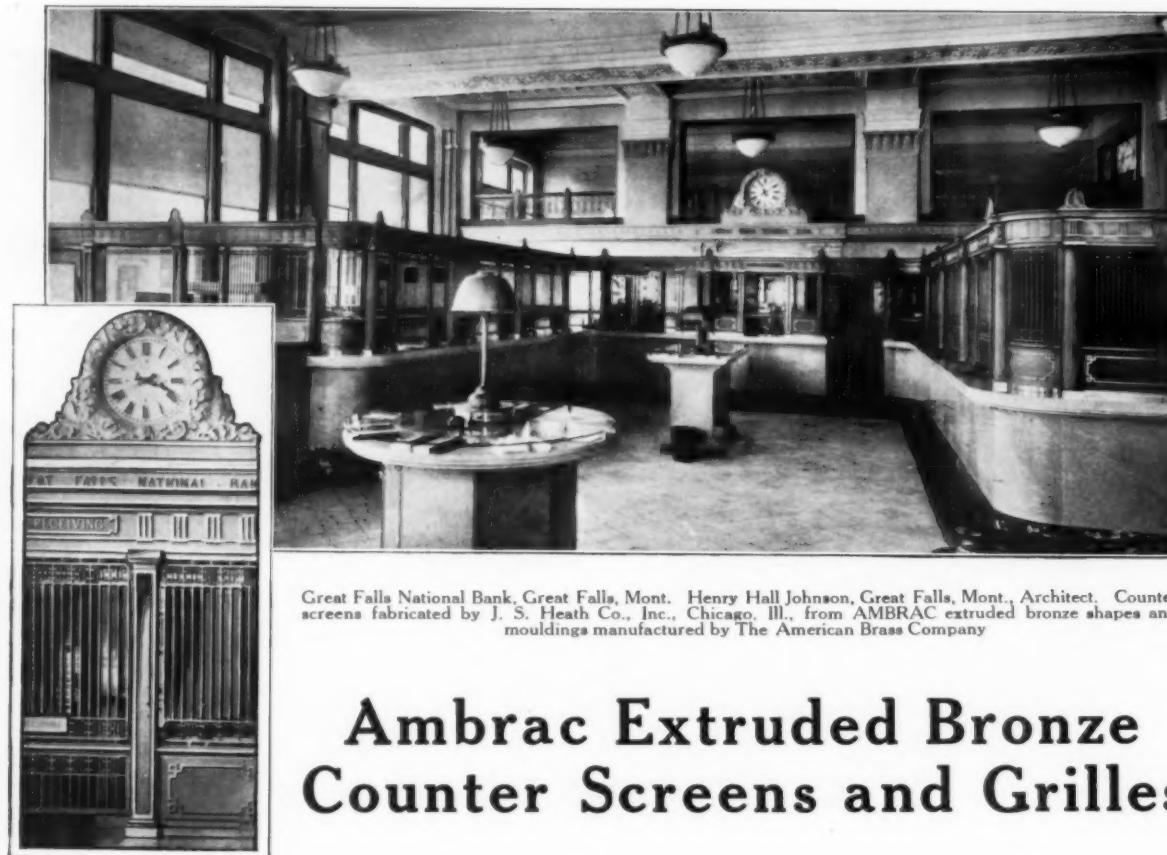
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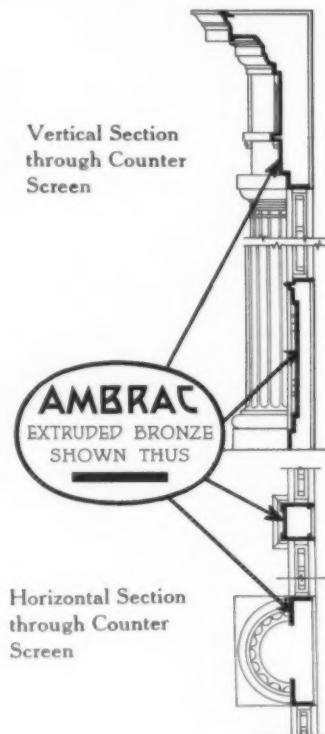
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The complete line of Wiring Devices



Great Falls National Bank, Great Falls, Mont. Henry Hall Johnson, Great Falls, Mont., Architect. Counter screens fabricated by J. S. Heath Co., Inc., Chicago, Ill., from AMBRAC extruded bronze shapes and mouldings manufactured by The American Brass Company

Ambrac Extruded Bronze Counter Screens and Grilles



AMBRAC extruded bronze architectural shapes are found in many of the banks and public buildings of the country. Because the bronze is forced through a die, which follows the original sectional drawing exactly, the resultant shape has the sharp lines and well-defined shadows that the architect demands. The most complicated sections are thus made of AMBRAC extruded bronze for screens, pilasters, grilles, wickets, counters, window frames and cornices.

AMBRAC bronze shapes are always extruded according to drawings submitted by architects. Hence, estimates for AMBRAC extruded shapes can be given only when drawings are sent.

The Extrusion Departments of The American Brass Company at either Ansonia, Conn., or Kenosha, Wis., will gladly supply technical information on request to architects, builders and property owners.

The American Brass Company
Waterbury, Conn.

ANSONIA BRANCH
Ansonia, Conn.

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Kenosha, Wis.

SERVICE SECTION of THE ARCHITECTURAL FORUM

Information on economic aspects of construction and direct service for architects on subjects allied to building, through members of THE FORUM Consultation Committee

Are We Ready for a National Clearing House for Construction?

CONTRACTORS, material men and cement manufacturers are in a controversy over sales made by manufacturers directly to the contractor. Who may compose the differences on a basis compatible with the best interest of the entire construction industry and the public welfare? Organized labor and organized contracting interests fix wages in the building trades and write agreements covering working conditions as if these basic questions were the private affairs of labor and contractors, rather than matters immediately vital to those who build and those who rent. Who may rightfully step in and insist that these decisions regarding wages and agreements take proper cognizance of the rights of the entire construction industry and, therefore, be based on a proper recognition of the public's rights?

The National Association of Builders Exchanges recently issued a Code of Ethics. The Associated General Contractors of America, at their annual meeting in New Orleans last January, formulated a Code of Ethics. In this field the American Institute of Architects has been a pioneer. The professional engineers, lumber organizations and material dealers have their codes; who may take these regulations and produce a composite of thought and practice that will be recognized nationally as the Code of Ethics of the entire construction industry? These questions suggest a problem to which the evolution of any industry invariably leads—a problem which right now confronts the construction industry of the United States and which, from now on, will be increasingly insistent.

Prophetic of an ultimate solution, in which will be recognized the fact that maximum protection for a group interest is had only through maximum service in the public interest, are the current activities in behalf of closer co-operation on the part of organized groups within the construction field. Here, again, the American Institute of Architects is active; the National Association of Builders Exchanges has a committee studying the subject of closer co-operation with other national bodies. The movement for a National Construction Congress, started last year, and the work of the National Federation of Construction Industries are experiments in the synchronization and adjustment of organization machines which hereto-

fore have been running wholly independently.

Whether or not a specific organization now fully meets the need for a national council, a heading-up organization for the construction industry, may be debatable. That some such organization is desirable—that it is imperative—may be asserted without fear of contradiction today. The National Federation of Construction Industries is an experiment in this field which has been operating long enough to afford a basis of observation. It is significant, perhaps, that the organization of this Federation was forced by war conditions.

Hastily built machines are bound to be imperfect, and it was not surprising that the National Federation, practically organized over night, functioned imperfectly in several particulars. This lack of perfection is less important than the fact that a crisis clearly indicated the need of some such machinery in the interests of both the government and the construction industry and that in the face of many obstacles a definite attempt was made to fill the need.

It is but a warranted recognition of helpful service to say that the National Federation was the only national organization which attempted a campaign to get construction costs down through voluntary action on the part of the interested factors. The fact that over 65 cities held conferences after the plan outlined by the National Federation suggests that its agitation was decidedly fruitful.

Of course this national organization has no dictatorial powers over its association members. It can be but an advisory body with no power to affect the autonomy of member organizations. Its power, in large measure, would rest in its contact with the public and in the voluntary co-operation of member organizations. The question whether organization machinery now at hand is accepted and perfected or other and new machinery must be provided, can be determined only by developments in the future. All that can be done at this time is to call attention to the pioneers in this field, to note their sincerity, courage and vision, and commend their accomplishments to the careful consideration of those who would see the construction industry 100 per cent efficient in serving itself through service to the national public.

BUILDING CODE STANDARDIZATION

ARCHITECTS who have encountered difficulties resulting from the varying requirements of building codes in different cities will be interested to know that considerable progress is being made in the establishment of national standards. At the present time Prof. Woolson of the National Board of Fire Underwriters is actively engaged with a committee appointed by Secretary Hoover to develop recommendations in this direction. The work of the National Board of Fire Underwriters tending toward the standardization of building codes has been recognized as of value to every branch of the construction industry.

The National Lumber Manufacturers' Association has recently made an exhaustive study of building codes and issues these interesting statistics as to building code activities in the various states. Any standardization or correction of building codes which will allow of minimum requirements and the free competition of all good materials and forms of construction must prove invaluable because of its effect of lessening the cost of building construction.

The committee appointed by Secretary Hoover includes two architects in its personnel, Ernest J. Russell, St. Louis, and Edwin H. Brown, Minneapolis. The other members in addition to Prof. Ira H. Woolson are: Rudolph P. Miller, Superintendent of Buildings, Manhattan; J. R. Worcester, consulting engineer, Boston; Prof. W. K. Hatt, Purdue University, and J. A. Newlin, Forest Products Laboratory.

We may note here also that architects through chapters of the American Institute of Architects and through the state associations are becoming more and more active along building code and related economic lines. In Minneapolis, for instance, the local chapter of the American Institute of Architects furnished the chairman and the driving force for putting through the excellent housing code which today serves as a model for 20 or 30 other municipalities. It has also assisted materially in securing a drastic ordinance affecting the height of buildings.

In Chicago, also, architects are actively engaged in bringing about beneficial changes in local building requirements. Similarly, in other sections of the country architects have co-operated to take a more active interest in committee affairs and in codes which affect building construction.

This is one of the most encouraging signs to the profession. It begins to recognize the value of closer co-operation and that it is possible for a group of architects to work together for the benefit of the community and the building industry.

THE FORUM INDEX

THE value of having definite information at hand to help reach intelligent decisions is recognized by many, and more or less definitely sensed by others. As observation of the methods of successful men becomes more keen, this appreciation of

knowing how and where to get information will become general. Buried data is, however, as good as useless and a systematic system of indexing and using any data is absolutely necessary.

THE FORUM in the course of a year publishes an immense amount of data of vital use to the architect. To help in making this readily accessible we have given serious study to our methods of indexing the contents and an examination of the index for the second volume of 1921, published with this issue, will indicate many improvements over previous forms. We have made but two main divisions, one illustrations and the other text. Illustrations are indexed under types of buildings, kinds of detail, etc., and when a building logically comes under different classifications it is included in each. Symbols further indicate the character of presentation, whether with plans, exterior or interior views, etc. All of this is further cross-indexed under architects' names.

The text matter is similarly indexed under subdivisions with particular relation to *subject* rather than *title*, so that use of the index is simplified and will disclose all material available under a given *subject*. This index represents painstaking work and expense on our part and we trust that it will be used to a degree corresponding with the effort made in its preparation. It presupposes that architects will retain their files complete, although we appreciate that in many offices a system of loose leaf vertical filing is in use; it is, however, our hope to adjust our index to such a system as well, and on this more will be said later. We will welcome suggestions from offices that have given consideration to this subordinate but important detail.

WAGES IN THE BUILDING TRADES

THE National Federation of Construction Industries issues this tabulation of building trades wages. Where wage adjustments have not been made construction is held up. Conditions should be settled by employers and workmen and equitable adjustments made without further loss of time.

Trade	No. of cities	Avg. 1914	Avg. 1920	Avg. 1921
Bricklayers.....	19	.756	1.26	1.117
Carpenters.....	18	.515	1.07	.93
Cement finishers.....	19	.538	1.043	.92
Engineers.....	12	.621	1.123	1.058
Granite cutters.....	14	.596	.996	.97
Electricians.....	17	.51	1.065	.995
Elevator constructors.....	11	.555	1.095	1.02
Gas fitters.....	12	.576	1.005	1.00
Lathers.....	16	.573	1.12	1.00
Marble setters.....	16	.631	1.098	.925
Painters.....	16	.515	1.00	.91
Plasterers.....	18	.615	1.192	1.115
Plumbers.....	18	.605	1.104	1.029
Sheet metal workers.....	18	.496	.969	.951
Steam fitters.....	19	.562	1.10	1.04
Stone cutters.....	16	.58	1.095	.99
Stone masons.....	16	.666	1.156	1.05
Steel erectors.....	19	.588	1.12	1.02
Tile setters.....	17	.61	1.063	.98
Building laborers.....	17	.285	.645	.465
Hod carriers.....	16	.337	.805	.717
Ornamental iron workers.....	15	.599	1.097	1.03
Pipe coverers.....	10	.524	1.053	1.007
Roofers.....	17	.484	.953	.907

THE FORUM CONSULTATION COMMITTEE

A group of nationally known experts on various technical subjects allied to building, providing a direct service to architects

THE editors of THE ARCHITECTURAL FORUM have been fortunate in obtaining the co-operation of the following recognized experts who constitute THE FORUM Consultation Committee. This Committee provides a service of the greatest value to subscribers in addition to the usual editorial service, and architects who seek information on specific questions in these various fields are invited to present inquiries.

The basis on which this Committee has been organized is:

- (a) That each Committee member shall be a representative leader in his line;
- (b) That no Committee member has affiliations with any manufacturer;
- (c) That no Committee member will be called upon for detailed service except by special arrangement;
- (d) That a special editorial article on a subject represented under each of the headings below shall be prepared during the year by the Committee member.

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Secretary and Chief Engineer, National Safety Council, Chicago

Safety engineering is an important factor in the design of buildings where large groups of people congregate. The National Safety Council has investigated construction and devices with the greatest minuteness.

ELECTRICAL SCIENCE

WILLIAM L. GOODWIN

Assistant to the President and in charge of activities of the Society for Electrical Development

This Society is organized to promote accurate knowledge of the practical application of electricity. Its activities extend from the simple problems of household equipment to highly developed electrical plants. Particular attention is given the development of provision for electrical service in buildings.

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C. STANLEY TAYLOR

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DANIEL P. RITCHIEY

Known in the hotel field as the "hotel doctor." Mr. Ritchey, who is an engineer as well as an experienced hotel owner and manager, is qualified to answer any questions which may arise in this connection.

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HAROLD F. BLANCHARD

For years a specialist in the layout and equipment of buildings of this type. Mr. Blanchard is a mechanical engineer and has practical knowledge of special conditions in many sections of the country through personal investigation.

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J. D. HUNTER

Chief Engineer, Marsh & McLennan, Insurance Brokers, New York

Specialist in insurance engineering as applied to building design, construction and equipment.

FARM SCIENCE

FREDERICK WALTER IVES, B.S., M.E.

President, The Agricultural Engineering Company, Columbus, Ohio. Professor and Head of Department of Agricultural Engineering, Ohio State University.

Specialist in land drainage, soil improvement, surveys, farm arrangement for economical production, purchase of equipment and economical layout of farm buildings with special reference to interior arrangement.

LEGAL QUESTIONS

WILLIAM L. BOWMAN

Attorney, Member of the New York Bar

Specialist in legal matters pertaining to real estate and building contracts.

**RETAIL PRICE QUOTATIONS—Published by special arrangement with *Building Supply News*, Chicago
BUILDING SUPPLIES LISTED.**

NEW ENGLAND

NEW YORK

All prices are retail,
delivered-on-the-job, unless otherwise noted.
An asterisk (*) after a figure, refers to note
below.
A star (*) after city name, denotes no revisions
received.

	Portland, Me. \$	Boston, Mass.	Providence, R. I.	Hartford, Conn.	New Haven	New York City	Albany, N. Y.††	Utica	Syracuse*	Oswego	Binghamton
(1) Bulk Lime.....per cwt.	....	....	....	....	....	....	....	....	....	\$1.25	....
(2) Barreled Lime, 180 lbs. (net) bbls.....per bbl.	\$2.75	\$3.20	\$3.25	\$4.60	....	....	\$3.10	\$3.10	3.90	\$3.00	....
(3) Barreled Lime, 280 lbs. (net) bbls.....per bbl.	....	4.50	4.50*	4.60*	\$4.50	\$4.50*	\$5.00*	4.65	4.60	4.75	4.50
(4) Crushed Stone.....per ton	....	2.50	....	4.35	....	....	2.75	3.60	2.20	3.20	....
(5) Crushed Stone.....per yd.	....	....	3.75	3.50	....	4.00*	....	....	2.64	5.25	....
(6) Common Brick, standard quality and sizes (8x2½x3½)	per M.	18.00	24.00	17.00	25.00	17.50	15.00	18.00	20.00	30.00	16.50
(7) Corner Bead, galvanized.....per ft.	.05	.04	.05	.045	.05	....	.06	.05	.05	.05	.05
(9) Drain Tile, 6 in.....per ft.	.15	.186	.30	.14	.125	....	.185	.129	.125	.07	.105
(10) Flue Lining, 8½ in. x 8½ in.....per ft.	.30*	50%*	.36	.35	.33	....	50%*	.275	.30	.33	.33
(11) Flue Lining, 8½ in. x 13 in.....per ft.	.45*	50%*	.54	.53	.495	....	50%*	.40	.45	.50	.50
(12) Fire Brick, Standard 9 in. No. 1 Clay.....per M.	85.00	75.00	90.00	70.00	70.00	75.00	80.00	80.00	73.00	80.00	70.00
(13) Fire Clay, in 100-lb. cloth bags, inc. bags.....per ton	....	25.00*	30.00*	25.00	21.43	15.00*	20.00	14.00	12.00	26.00	20.00
(14) Gravel, washed.....per yd.	....	1.80*	2.00	2.50*	....	3.25*	2.00	....	....	....	....
(15) Hollow Building Tile (8x12x12 in.).....per M.	*	260.00	....	300.00	....	221.10	350.00*	240.25	250.00	275.00	300.00
(16) Hollow Building Tile (8x5x12 in.).....per M.	*	140.00	....	....	....	117.90	200.00	....	135.00	....	....
(17) Hydrated Lime (mason's) in 50 lb. paper bags.....per bag	.50	.50	.80	.575	.55	.45	.60	.525	.60	.65	.50
(18) Hydrated Lime (finishing) in 50 lb. paper bags.....per bag	....	.55	.85	.625	.60	.60	.70	.606	.70	.75*	.65
(19) Hair.....per bu.	.50	.50	.55	.80*	.55	.60*	.75	.50	.50	.75	....
(20) Metal Lath, Exp., Gauge No. 24, weight 3.4 lbs. t.....per yd.	....	.2933	.38	.35	.33	.2933	.40	.33	.32	.45	....
(21) Metal Lath, Expanded, Gauge No. 25, weight 3 lbs.....per yd.	....	.255	.37	.34	.32	.2260*	.38	....	.30	....	....
(22) Mortar Color, red.....per lb.	....	.03	.03	.025	.03	.03	.035	.025	.05	.05	.03
(26) Partition Tile, Clay (4x12x12 in.).....per M.	....	140.00	220.00	160.00	170.00	153.50*	170.00	129.75	160.00	200.00	160.00
(28) Partition Tile, Gypsum (4x12x30 in.).....per ft.	....	.185	.24	.19	.20	....	.20	....	.16	....	.20
(29) Portland Cement, 4 sacks to bbl., (excluding sks.).....per bbl.	3.20	3.20	3.30	3.18	3.20	2.80*	3.35	3.54	3.10	3.35	3.50
(30) Extra charge for each cloth sk.....per sk.	.10	.10	.075	.075	.075	....	.10	.075	.075	.10	.10
(31) Paving Block, vitrified (3½x4x8½ in.).....per M.	....	75.00	....	....	....	....	....	50.00	75.00	....	....
(32) Plaster Board, ½ in. thick.....per M. sq. ft.	....	32.50	40.00	28.00*	31.25	.23*	.28*	34.50	32.00	32.00	35.00
(33) Sand (Building).....per ton	....	1.55	....	....	....	....	....	2.50	....	....	4.00
(34) Sand (Building).....per yd.	....	2.50	2.00	1.50	....	1.80	2.00	....	....	4.00	....
(36) Sewer Pipe, single strength, off list.....per cent.	30%	50%	40%	40%	45%	20%	45%	53%	60%	45%	50%
(36) Wall Coping, 9 in.....per ft.	.20*	45%*	.32	.24*	.22	.32	45%	.36	.18	.22	.22
(38) Wall Plaster, neat, in paper, in 80 lb. bags.....per ton	....	....	....	25.00	....	....	....	....	18.75	....	20.00
(39) Wall Plaster, neat, in cloth, 100 lb. sks, incl. sks.....per ton	23.00	24.00*	24.00*	24.00*	28.00	22.00*	26.00*	20.00*	20.50*	22.50	19.00*
(40) Wall Plaster, sanded, in cloth, 100 lb., incl. sks.....per ton	....	21.00*	21.00*	20.50*	21.00*	18.00*	20.50*	15.00	14.20*	22.50	17.00
(41) Wall Plaster, wood fibre, in cloth, 100 lb., incl. sks.....per ton	23.00	24.00*	24.00*	24.00*	28.00	22.00*	26.00*	20.00*	20.50*	25.00*	20.00
(42) Wall Ties, galvanized.....per M.	....	12.60	....	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
(43) Wall Plugs.....per M.	....	35.00	35.00	....	30.00	30.00*	30.00	25.00	25.00	28.00	....
(44) Asphalt Shingle (*singles; †stripped).....per sq.	....	7.00*	9.50*	7.00*	....	8.50*	....	6.50†	7.00*	6.50*	6.50
(45) Roofing Slate Surf. (*heavy, extra heavy).....per sq.	....	3.00*	....	2.90	....	....	4.35†	2.65†	2.75**	3.00†	3.00*
(46) Roofing Smooth Surf. (*light, †medium, ‡heavy).....per sq.	....	2.30†	3.50‡	4.25‡*	....	....	2.88*	2.65‡*	2.25	2.25‡	4.25‡
(47) Stucco Board, Medium wt.....per M. sq. ft.	....	50.00	....	55.00*	....	70.00	....	60.00*	55.00	....	....
(48) Stucco Board, Narrow Key.....per M. sq. ft.	....	55.00	....	60.00*	....	....	....	....	60.00	....	....
LUMBER ITEMS											
(49) Wood Lath, No. 1 (size 4 ft.).....per M.	....	13.00	9.50	13.00*	11.00	12.50*	12.00	12.00*	....	12.00	12.00
(50) No. 1 Yellow Pine Dimension 12 to 16 ft.....per M. Board ft.	....	....	....	65.00	....	....	45.00	45.00*	....	40.00	45.00
(51) 1x10 No. 1 Shiplap, Y. P., all lengths.....per M. Board ft.	....	....	....	....	....	....	38.00	40.00*	....	45.00	....
(52) 1x10 No. 2 Shiplap, Y. P., all lengths.....per M. Board ft.	....	....	....	....	....	....	38.00	35.00*	....	40.00	....
(53) 1x4 No. 2 Sheathing.....per M. Board ft.	....	....	....	....	....	....	38.00	40.00	....	36.00	....
(54) 1x4 "B" Flooring.....per M. Board ft.	....	....	....	60.00*	....	....	90.00	85.00*	....	62.00	....
(55) Yellow Pine Clear Finish.....per M. Board ft.	....	....	....	80.00	....	....	90.00	90.00	....	75.00	....
(56) 1x6 "B&Btr" Drop Siding.....per M. Board ft.	....	....	....	60.00*	....	....	....	65.00	....	75.00	....
(57) 1x6 No. 1 Common Drop Siding.....per M. Board ft.	....	....	....	....	....	....	....	65.00*	....	50.00	....
(58) Cypress Finish Lumber.....per M. Board ft.	....	....	....	125.00	....	....	150.00	150.00	....	160.00	....
(59) ½x4 "B" Partition.....per M. Board ft.	....	....	....	60.00	....	....	....	75.00*	....	75.00	85.00
(60) ½x4 "B" Ceiling.....per M. Board ft.	....	....	....	50.00	....	....	....	60.00*	....	50.00	60.00
(61) ½x5 Clear Rdwd. Bevel Siding.....per M. Board ft.	....	....	....	60.00*	....	....	58.00	60.00*	....	60.00	....
(62) Mouldings, Yellow Pine.....over list	....	....	....	50%	....	....	.015	1.25	....	.015*	....
(63) Washington 16 in., 5/2 Clears.....per M.	....	....	....	....	....	....	6.75	7.50	....	6.20	6.75
(64) Washington 16 in., 5/2 Clears.....per sq.	....	....	....	....	....	....	5.50	6.00	....	5.10	....
(65) Canadian 6 in., 5/2 xxxx Clears.....per M.	....	....	....	7.00	....	....	....	7.80	....	6.75	7.75
(66) Canadian 16 in., 5/2 xxxx Clears.....per sq.	....	....	....	....	....	....	....	6.00	....	....	....
(67) 1x6 in.-8 in.-10 in.-12 in. No. 1 Com. Yellow Pine Boards.....per M.	....	....	....	35.00*	....	....	38.00	4.00*	....	45.00	63.00*
ADDITIONAL ITEMS											
(68) Stucco, Cement.....Per Sq. Yd.	....	....	....	....	....	....	....	.60	....	....	....
(69) Stucco, Magnesite (Note Brand) Not Incl. Bags.....Per Sq. Yd.	....	....	....	....	....	....	....	....	....	....	....
(70) Price and Rebate on Bags.....Per Bag.	....	....	.30	....	....	....	.10	....	.30	....	....
(71) Wall Board (Please Note Kind)*.....Per Sq. Ft.	.0435	....	.05	.055	....	....	.04	.036	.045	.045	....

*(Above Item 49)—No lumber revisions received for this issue from this city.

†Portland, consumer prices; contractor quotations on application.

††Albany allows 10% and 2% off to contractors if paid by 10th of month following delivery.

‡Above Hartford Lumber prices means prices advancing at wholesale.

§Above Utica lbr. items means prices at yard, add 25¢ per load for delivery less than 1,500 ft. and 40¢ per load for over 1,500 ft.

Lime, Barreled (Item No. 3)—Providence, Albany, common; 300 lb. barrel, New York City; Hartford, 4 lbs. per bu.

Metal Lath (Item 21)—New York City, Gauge 26.

Par. Tile (26 & 28)—New York, less than 2,000 ft.

Crushed Stone (5)—New York, per 2600 lb. yd.

Flue Lining (Item 10, 11)—Boston, Albany, off list. Portland, 50% off list, 10% cash discount in 15 days.

Fire Clay (Item 13)—New York City, 100 lb. bag rate; no credit for returned cloth sacks, Boston, New York, Providence.

Gravel (14)—New York, \$2.75 to \$3.25. Boston, Hartford, per ton.

Hollow Building Tile (Items 15-16)—Portland, not stocked in Portland; Albany, heavy, less 10% and 2%.

Hair (19)—New York, per lb.; Hartford, 4 lbs. per bu.

Metal Lath (Item 21)—New York City, Gauge 26.

Par. Tile (26 & 28)—New York, less than 2,000 ft.

Portland Cement (Item 29)—New York City, including bags.

Plaster Board (Item 32)—New York City, Albany, price for each, size 32x36x½ in.; Hartford, 32x36x½ in.

Wall Coping (36)—Boston, per cent. off; Hartford, 8 inch; Portland, 30% off list, 10% cash discount in 15 days.

Wall Plaster (38, 39, 40, 41)—Returned bags, Syracuse, Utica, Providence, New Haven, 15c; Albany, Oswego, 10c each; Boston, 12c each; Hartford, 13c; come for bags; New York City, 25c. Sacks extra, Binghamton.

Wall Plugs (Item 43)—New York, chiefly hardware dealers.

Roofing, Slate Surf. (Item 45)—70 lbs., Syracuse.

Roofing, Smooth Surf. (Item 46)—55 lbs., Boston, Hartford, Al-

bany; 3 ply, 63 lbs., Utica.

Stucco Board (Items 47, 48)—Hartford, Utica, creosoted.

Item 49—Hartford, Utica, spruce; New York City, Eastern spruce, \$11.50 to \$12.00. (Item 50)

—Utica, 10 and 14 ft., \$45.00; 16 ft., \$47.00. (Items 51, 52)—Utica, 1x6 and 1x8 inches. (Item 54)—Hartford, B Flat; Utica, B & Btr. grain. (Item 55)—Hartford, fir; grain. (Item 56)—Hartford, fir; grain. (Item 57)—Utica, spruce; (Item 58-60)—Utica, B & Btr.; (Item 61)—Utica, 6 in.; Hartford, 6 in. Red Cedar; (Item 62)—Oswego, per inch; (Item 63)—Binghamton, Hartford, No. 2 C.; Utica, No. 3 Com.

Wall Board: (Item 71)—Brand of Wall Board will be furnished upon request.

**RETAIL PRICE QUOTATIONS—Published by special arrangement with *Building Supply News*, Chicago
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delivered-on-the-job, unless otherwise noted.

An asterisk (*) after a figure, refers to note below.

A star (★) after city name, denotes no revisions received.

	Elmira	Rochester	Buffalo	Jamestown, N. Y.	Allentown, Pa.	Erie	Philadelphia	Reading	Pittsburgh	Scranton	Newark, N. J.	Paterson, N. J.
(1) Bulk Lime.....	per cwt.	....	....	....	\$0.75	....	\$0.55	\$0.65*	\$1.00	\$0.80	....	....
(2) Barreled Lime, 180 lbs. (net) bbls.....	per bbl	\$3.60	\$3.00	\$2.50	....	3.00	\$3.25	.75*	....	2.75	2.80	\$3.15* \$ 3.21
(3) Barreled Lime, 260 lbs. (net) bbls.....	per bbl	5.25	4.75	....	....	4.00	5.10	....	....	....	....	5.00*
(4) Crushed Stone.....	per ton	....	2.50	....	....	2.00	2.30	3.75	2.00	5.50*	2.75	3.35
(5) Crushed Stone.....	per yd.	2.50	2.00	....	....	....	....	....	....	....	4.00	....
(6) Common Brick, standard quality and sizes (8x12x3½).....	per M.	30.00	17.00	22.50	\$25.00	17.00	23.50	20.00*	20.50	16.00	20.00	21.00 18.00
(7) Corner Bead, galvanized.....	per ft.	.07	.05	.05	....	.06	.04	.035	.05	.06	.06	.05 .09
(9) Drain Tile, 6 in.....	per ft.	....	.11	.12	....	....	.095	....	....	.12	.14	.1675 .17
(10) Flux Lining, 8½ in. x 8½ in.....	per ft.	.50	.30	.26	.42	.34	.27*	.36	.36	.30	.25	.30 .31
(11) Flux Lining 8½ in. x 13 in.....	per ft.	.65	.45	.41	.63	.52	.40*	.54	.54	.45	.36	.45 .47
(12) Fire Brick, Standard 9-in. No. 1 clay.....	per M.	80.00	65.00	60.00	75.00	72.00	70.00	75.00	70.00	....	65.00	69.00
(13) Fire Clay, in 100-lb. cloth bags, including bags.....	per ton	20.00*	20.00	12.00	30.00*	18.00*	15.00	22.00	15.00	20.00*	20.00*	17.00 1.50*
(14) Gravel, washed.....	per yd.	2.00*	2.75	....	....	....	3.50	2.25*	4.00*	2.00*	2.00*	4.20
(15) Hollow Building Tile (8x12x12 in.).....	per M.	220.00	230.00*	200.00	....	212.50	....	....	....	135.80	260.00	240.00 260.00
(16) Hollow Building Tile (8x5x12 in.).....	per M.	....	250.00*	95.00	110.00	111.20	70.00	....	....	60.00	....	110.00
(17) Hydrated Lime (masons) in 50-lb. paper bags.....	per bag	....	.475	.45	.59	.40	.475	.40625	.60	.50	.50	.50 .45
(18) Hydrated Lime (finishing) in 50-lb. paper bags.....	per bag	.75	.50	.45	.59	.58	.50	.5375	.75	.55	.60	.60 .55
(19) Hair.....	per bu.	.65*	.75*	.48	....	.75*	.15*	.40	.50	.75*	.70*	.70 .15*
(20) Metal Lath, Expanded, Gauge No. 24, wt. 3.4 lbs.‡.....	per yd.	.40	.37	.35	.39	.36	.37	.33	.33	.32	.31	.36 .40
(21) Metal Lath, Expanded, Gauge No. 25, wt. 3 lbs.....	per yd.	....	.35	....	....	....	.30	.30	.30	....	....	.35 .43
(22) Mortar Color, red.....	per lb.	.06	.05	....	.05	.035	.03	.035	.05	.0225	.06	.03 .03
(26) Partition Tile, Clay (4x12x12 in.).....	per M.	150.00	110.00	100.00	....	138.00	90.00	230.00	....	72.40	140.00	140.00 150.00
(28) Partition Tile, Gypsum (4x12x30 in.).....	per ft.	....	.12	.14	.16	.17	....	.19	.19	....	....	.195 .21
(29) Portland Cement, 4 sacks to bbl. (excluding aka.).....	per bbl	3.20	3.00	2.85	3.15	2.60	3.10	2.85	3.10	2.60	3.00	2.80 2.64
(30) Extra charge for each cloth sack.....	per sk.	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10 .10
(31) Paving Block, vitrified (3½x4x8½ in.).....	per M.	....	50.00	....	....	75.00	....	....	55.00	....	45.00	51.00 55.00
(32) Plaster Board, ½ in. thick.....	per M. sq. ft.	33.75	32.00	38.75	37.50	38.00	50.00	40.00	37.50	50.00	35.00	32.50 .25*
(33) Sand (Building).....	per ton	....	....	....	....	3.50	3.50	....	3.80	2.00*	3.00	2.10 2.60
(34) Sand (Building).....	per yd.	4.00*	2.50	....	....	....	3.00	2.05	....	....	3.00*	2.50 2.75
(35) Sewer Pipe, single strength, off list.....	per cent.	40%	45%	50%	40%	39%	55%	38%	50%	50%	50%	45% 45%
(36) Wall Coping, 9 in.....	per ft.	.25	.22	.22	.28	.23	.18	.248	.22	.20	.26	.22 .28
(38) Wall Plaster, neat, in paper, in 80-lb. bags.....	per ton	19.00	20.00	....	22.00	....	....	....	22.00	....	....	....
(39) Wall Plaster, neat, in cloth, 100-lb. sacks, including sacks.....	per ton	23.00	19.00	18.00	22.00*	25.00*	25.00	22.50*	25.00	24.00*	24.00*	22.00 25.00
(40) Wall Plaster, sanded, in cloth, 100-lb., including sacks.....	per ton	23.00	21.00	13.00	21.00*	22.00*	17.00*	17.50*	22.00	20.00*	17.40*	16.80* 17.00
(41) Wall Plaster, wood fibre, in cloth, 100-lb., including sacks.....	per ton	23.00	19.00	18.00	22.00*	....	25.00*	22.50*	....	24.00	24.00*	.... 24.00
(42) Wall Ties, galvanized.....	per M.	5.00*	5.00	5.00	5.00	3.50*	3.50	6.00	5.00	3.00*	....	5.00 4.00
(43) Wall Plugs.....	per M.	22.50	25.00	20.00	....	25.00	....	....	....	....	....	.... 26.00
(44) Asphalt Shingle (*singles; †stripped).....	per sq.	6.50†	6.50†	....	7.50*	7.50†	7.00*	8.00	7.00	7.00†	7.00*	7.45 7.50
(45) Roofing Slate Surf. (*heavy, ‡extra heavy).....	per sq.	3.00**	2.75**	....	3.25*	3.00	....	....	2.75	3.00	3.00*	3.00*
(46) Roofing Smooth Surf. (*light, †medium, ‡heavy).....	per sq.	3.00*	3.25*	....	2.85†	2.90	....	....	....	....	1.50*	3.15*
(47) Stucco Board, Medium wt.....	per M. sq. ft.	55.00	55.00*	55.00	....	55.00	60.00	....	50.00	55.00	50.00	....
(48) Stucco Board, Narrow Key.....	per M. sq. ft.	....	....	55.00	55.00	68.00	70.00	65.00	55.00	60.00	55.00	70.00
LUMBER ITEMS												
(49) Wood Lath, No. 1 (Size 4 ft.).....	per M.	12.00	....	....	13.00	11.50*	12.50	12.00	12.00	12.00	11.50	12.50* 12.50
(50) No. 1 Yellow Pine Dimension 12 to 16 ft.....	per M. Board ft.	46.00*	....	....	40.00	42.00	42.00	....	42.00	44.00	40.00	....
(51) 1x10 No. 1 Shiplap, Y. P., all lengths.....	per M. Board ft.	....	....	....	....	45.00	....	....	45.00	60.00	....	....
(52) 1x10 No. 2 Shiplap, Y. P., all lengths.....	per M. Board ft.	46.00*	....	....	40.00	42.00	45.00	....	40.00	43.00	45.00	....
(53) 1x4 No. 2 Sheathing.....	per M. Board ft.	38.00	....	....	40.00	40.00	45.00	....	40.00	43.00	40.00	....
(54) 1x4 "B" Flooring.....	per M. Board ft.	80.00*	....	....	70.00	70.00	80.00	....	60.00	65.00	70.00	....
(55) Yellow Pine Clear Finish.....	per M. Board ft.	100.00	....	....	100.00	95.00	120.00	....	90.00	100.00	95.00	....
(56) 1x6 "B&B" Drop Siding.....	per M. Board ft.	....	....	....	70.00	70.00	....	....	....	65.00	....	....
(57) 1x6 No. 1 Common Drop Siding.....	per M. Board ft.	50.00*	....	....	60.00	....	60.00	....	65.00	58.00	....	....
(58) Cypress Finish Lumber.....	per M. Board ft.	120.00	....	....	....	....	....	....	160.00	160.00	....	....
(59) ¾x4 "B" Partition.....	per M. Board ft.	80.00*	....	....	70.00	70.00	75.00	....	75.00	73.00	80.00	....
(60) ½x4 "B" Ceiling.....	per M. Board ft.	55.00	....	....	60.00	58.00	65.00	....	55.00	58.00	....	....
(61) ½x5 Clear Rdwd. Bevel Siding.....	per M. Board ft.	40.00*	....	....	60.00	56.00	60.00	....	....	65.00	....	....
(62) Mouldings, Yellow Pine.....	over list	1.25	....	....	1.25*	....	1.00	....	....	1.10	1.00*	....
(63) Washington 16 in., 5/2 Clears.....	per M.	7.25	....	....	6.50	7.50	7.50	....	8.00	7.00	6.50	....
(64) Washington 16 in., 5/2 Clears.....	per sq.	6.50	....	....	5.20	....	....	....	....	6.50	....	....
(65) Canadian 16 in., 5/2 xxxx Clears.....	per M.	6.50*	....	....	7.50	....	....	....	....	....	....	....
(66) Canadian 16 in., 5/2 xxxx Clears.....	per sq.	6.50	....	....	6.00	....	....	....	....	....	....	....
(67) 1x6 in.-8 in.-10 in. 12 in., No. 1 Com. Yellow Pine Boards.....	per M.	46.00	....	....	60.00	60.00	....	....	60.00	60.00	....	....
ADDITIONAL ITEMS												
(68) Stucco, Cement.....	Per Sq. Yd.	....	....	....	....	....	....	....	....	....	....	....
(69) Stucco, Magnesite (Note Brand) Not Incl. Bags.....	Per Sq. Yd.	....	....	....	....	....	....	....	....	....	....	....
(70) Price and Rebate on Bags.....	Per Bag.	....	....	....	....	....	.20	....	....	.25	....	....
(71) Wall Board (Please Note Kind)*.....	Per Sq. Ft.	.042	.04	....	....	.0425	.05	....	.04	.045	....	.05

*(Above item 49)—No lumber revisions received for this issue from this city.

(†) Means no cloth bags used.

Lime (bulk, Item No. 1)—Reading, (Item 2-3)—(2) Newark includes bbls., returned at 15c; (Item 3), finishing, returned bags, 10c; Philadelphia, per bu.; Paterson, 300 lbs.

Crushed Stone (4)—Pittsburgh, size 1 in.

Common Brick (Item 6)—Philadelphia, f. o. b. job. mfrs. retail price.

Flue Lining (Items No. 10, 11)

—Erie, (10) 8x8 in., (11) 8x12 in.

Fire Clay (Item 13)—Return bags, Elmira, 15c; Jamestown,

none; Pittsburgh, paper sacks, \$2.00 extra per ton, in cloth sacks, with no allowance for returned sacks. Scranton, returned sks., 25c; Paterson, per bag.

Gravel (Item No. 14)—Scranton, 2400 lb. yd.; Elmira, 2500 lb. yd.; 2000 lb. ton, Reading; Philadelphia, per ton; Pittsburgh, del. price river front, longer hauls up to \$3.00.

F. O. B. Float, \$1.60; Scranton, per ton.

Hollow Building Tile (Item 15-16)—Rochester, (Item 15) 4 cell; (Item 16) 6 cell.

Hair (19)—Lbs. per bu., Pittsburgh, Elmira, 4; Scranton, 7; price per lb., Erie; old stock,

Rochester; Pittsburgh, fibre; Allentown Govt.; Paterson, per lb.

Plaster Board (Item 33) Paterson, price for each.

Sand (Item 34)—Elmira, 2600 lb. yd.; Pittsburgh, del. price river front, longer hauls up to \$3.00.

F. O. B. Float, \$1.60; Scranton, per bag.

Wall Plaster (Items 39, 40, 41)—

Returned sacks, 15c. Jamestown, Allentown, Scranton, Pittsburgh, Philadelphia; 20c. Erie; Newark, 15c credit for returned sacks.

Wall Ties (Item 42)—Corrugated. Allentown, Elmira; per box, Pittsburgh.

Roofing, Slate Surf. (Item 45)—

70 lbs., Elmira; 75 lbs., Rochester.

Roofing, Smooth Surf. (Item 46)—

55 lbs., Elmira, Rochester.

Stucco Board (Item 47)—Rochester, Sheetrock.

(Item 49)—Newark, spruce; Allentown \$11.50 to \$12.50. (Item 50)

**RETAIL PRICE QUOTATIONS—Published by special arrangement with *Building Supply News*, Chicago
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An asterisk (*) after a figure, refers to note
below.
A star (★) after city name, denotes no revisions
received.

MIDDLE AND SOUTHERN ATLANTIC STATES

	Trenton, N. J.	Wilmington, Del.	Washington, D. C.	Baltimore, Md.	Norfolk, Va.	Richmond, Va.	Huntington, W. Va.	Fairmont, W. Va.	Wheeling, W. Va.	Atlanta, Ga.
(1) Bulk Lime.....	per cwt. \$0.60*	\$0.79	\$0.75	\$ 0.51*	....	....	....	....	....	\$1.80*
(2) Barreled Lime, 180 lbs. (net) bbls.....	per bbl. *	2.70	2.50	2.25	\$2.50	\$2.15	\$2.80	\$2.50	\$2.75	2.25
(3) Barreled Lime, 280 lbs. (net) bbls.....	per bbl. *	....	....	....	....	....	....	....	....	....
(4) Crushed Stone.....	per ton 4.50	2.50	....	....	3.00	3.75	....	4.50	5.00	....
(5) Crushed Stone.....	per yd.	3.40	....	....	....	....	....	....	....	....
(6) Common Brick, standard quality and sizes (8x2½x3¾).....	per M. 14.00	22.00	18.00	21.00*	16.00	20.00	18.00	27.00	21.00	12.35*
(7) Corner Bead, galvanized.....	per ft. .06	.04	.04	.05	.05	.06	.07	.04	.05	.065
(8) Drain Tile, 6 in.....	per ft. ....	....	.11	.14	.12	.125	.12	.10	.09	.11
(10) Flue Lining, 8½ in. x 8½ in.....	per ft. ....	.36	.20	.30	.30	.30	.30	.27	.30	.45
(11) Flue Lining, 8½ in. x 13 in.....	per ft. .58	.54	.30	.45	.45	.45	.45	.40	.45	.60
(12) Fire Brick, Standard 9 in. No. 1 Clay.....	per M.	75.00	80.00	75.00	80.00	85.00	60.00	60.00	65.00	60.00
(13) Fire Clay, in 100-lb. cloth bags, inc. bags.....	per ton	21.00	25.00*	18.00	20.00	20.00*	15.00*	14.00*	11.50*	20.00*
(14) Gravel, washed.....	per yd. 2.50*	2.80	2.75*	2.50	4.00	4.00	2.40	3.25	2.00*	....
(15) Hollow Building Tile (8x12x12 in.).....	per M. 210.00*	160.00	200.00	225.00*	....	....	200.00	210.00*	185.00	133.35
(16) Hollow Building Tile (8x5x12 in.).....	per M.	85.00	100.00	....	....	....	85.00	75.00	65.00	76.00*
(17) Hydrated Lime (masons) in 50 lb. paper bags.....	per bag .475	.45	.40	.375	20.00*	18.50*	21.00*	.375	.50	1.90*
(18) Hydrated Lime (finishing) in 50 lb. paper bags.....	per bag .65	.60	.57	.50	22.50*	23.50*	22.00*	.475	.50	2.75
(19) Hair.....	per bu. .45	.42	.50	.50	.60	.50	.50	.12*	.75	1.00*
(20) Metal Lath, Expanded, Gauge No. 24, wt. 3.4 lbs. t.....	per yd. .38	.35	.28	.355	.30	.35	.38	.34	.35	.40
(21) Metal Lath, Expanded, Gauge No. 25, wt. 3 lbs.....	per yd. .37	.31	.43	.305*	....	.35*	.35	....	.38	.345
(22) Mortar Color, red.....	per lb. .04	.04	.06	.035	.05	.04	.0275	.0265	.035	.0225
(26) Partition Tile, Clay (4x12x12 in.).....	per M.	130.00	110.00	125.00*	180.00	150.00	115.00	100.00	82.50	79.80
(28) Partition Tile, Gypsum (4x12x30 in.).....	per ft. .18	.19	.155	.18	....	.20	.17	....	....	....
(29) Portland Cement, 4 sacks to bbl., (excluding sks.).....	per bbl. 3.20	2.85	2.60	2.87	3.50	3.15	3.20	2.50	2.50	3.45
(80) Extra charge for each cloth sk.....	per sk. .10	.075	.10	.07	.075	.10	.10	.10	.10	.10
(31) Paving Block, vitrified (3½x4x8½ in.).....	per M. 65.00*	40.00	....	50.00	....	60.00	32.00*	....	....	....
(32) Plaster Board, ½ in. thick.....	Per M. sq. ft. .30*	35.00	31.25	37.00	....	40.00	35.00	35.00	35.00	....
(33) Sand (Building).....	per ton 2.00	2.05	1.60	....	2.00	2.75	....	3.00	2.20	....
(34) Sand (Building).....	per yd.	2.55	2.10	....	2.50	3.00	2.25	....	....	1.85*
(35) Sewer Pipe, single strength, off list.....	per cont. 50%	40%	25%	50%	50%	50%	50%	55%	55%	51%
(36) Wall Coping, 9 in.....	per ft. .20	.24	.24	.26	.22	.22	.20	.20	.20	.35
(38) Wall Plaster, neat, in paper, in 80 lb. bags.....	per ton 22.00	19.50	....	....	24.00	22.00*	....	19.00	....	....
(89) Wall Plaster, neat, in cloth, 100 lb. sks., inc. sks.....	per ton	22.50	21.00*	20.25	22.50*	23.00*	24.00*	21.00*	21.00*	25.00*
(40) Wall Plaster, sanded, in cloth 100 lb. sks., inc. sks.....	per ton	20.00	23.00*	....	22.50*	23.00*	24.00*	....	16.00	....
(41) Wall Plaster, wood fibre, in cloth, 100 lb. sks., inc. sks.....	per ton	22.50	23.00*	....	22.50*	23.00*	24.00*	21.00*	21.00*	....
(42) Wall Ties, galvanized.....	per M. 4.50	5.00	5.00	5.00	5.00	5.00	3.50	3.50	5.00	3.75
(43) Wall Plugs.....	per M.	25.00	28.00	25.00	....	....	20.00	....	16.00	....
(44) Asphalt Shingle (*single; fstripped).....	per sq. 8.00†	8.50	6.00	5.70†	....	....	6.75*	7.00*	7.25*	7.00*
(45) Roofing Slate Surf. (*heavy, fextra heavy).....	per sq. 3.25*	3.00	3.01*	2.60**	....	....	3.00*	2.50†*	2.60**	2.75†
(46) Roofing Smooth Surf. (*light, fmedium, fheavy).....	per sq. 2.75†	2.80	2.90\$	2.65\$	....	....	2.75\$	3.00*	2.80\$	2.70\$
(47) Stucco Board, Medium wt.....	per M. sq. ft. ....	....	75.00	....	60.00	65.00	....	55.00*	45.00	....
(48) Stucco Board, Narrow Key.....	per M. sq. ft. 65.00	68.00	....	....	....	....	....	....	....	....

LUMBER ITEMS

(49) Wood Lath, No. 1 (size 4 ft.).....	per M. 13.50*	13.00*	8.50	13.00	8.00	6.00	10.50*	....	....	....
(50) No. 1 Yellow Pine Dimension 12 to 16 ft.....	per M. Board ft. 40.00	40.00	....	....	....	....	38.00	....	....	....
(51) 1x10 No. 1 Shiplap, Y. P., all lengths.....	per M. Board ft. ....	....	55.00	....	....	....	50.00	....	....	....
(52) 1x10 No. 2 Shiplap, Y. P., all lengths.....	per M. Board ft. 42.50	....	....	....	....	....	38.00	....	....	....
(53) 1x4 No. 2 Sheathing.....	per M. Board ft. ....	....	....	....	....	....	....	....	....	....
(54) 1x4 "B" Flooring.....	per M. Board ft. 70.00	70.00	....	....	....	....	70.00	....	....	....
(55) Yellow Pine Clear Finish.....	per M. Board ft. 75.00	70.00	....	....	....	....	90.00	....	....	....
(56) 1x6 "B&B" Drop Siding.....	per M. Board ft. 70.00	55.00	....	....	....	....	65.00	....	....	....
(57) 1x6 No. 1 Common Drop Siding.....	per M. Board ft. ....	....	....	....	....	....	55.00	....	....	....
(58) Cypress Finish Lumber.....	per M. Board ft. 135.00	....	....	....	....	....	160.00	....	....	....
(59) ½x4 "B" Partition.....	per M. Board ft. 75.00	70.00	....	....	....	....	75.00	....	....	....
(60) ½x4 "B" Ceiling.....	per M. Board ft. 50.00	40.00	....	....	....	....	55.00	....	....	....
(61) ½x5 Clear Rdwd. Bevel Siding.....	per M. Board ft. 65.00	....	....	....	....	....	....	....	....	....
(62) Mouldings, Yellow Pine	over list 1.00	1.00	....	....	....	....	1.00	....	....	....
(63) Washington 16 in., 5/2 Clears.....	per M. ....	....	....	....	....	....	6.50*	....	....	....
(64) Washington 16 in., 5/2 Clears.....	per sq. ....	....	....	....	....	....	....	....	....	....
(65) Canadian 16 in., 5/2 xxxx Clears.....	per M. 7.50	....	....	....	....	....	8.00*	....	....	....
(66) Canadian 16 in., 5/2 xxxx Clears.....	per sq. 6.50	....	....	....	....	....	....	....	....	....
(67) 1x6 in.-8 in.-10 in. 12 in., No. 1 Com. Yellow Pine Boards.....	per M. ....	....	....	....	....	....	58.50	....	....	....

ADDITIONAL ITEMS

(68) Stucco, Cement.....	Per Sq. Yd. ....	....	....	....	....	....	....	52.00*	....	....
(69) Stucco, Magnesite (Note Brand) Not Incl. Bags.....	Per Sq. Yd. ....	....	....	....	....	....	....	....	....	....
(70) Price and Rebate on Bags.....	Per Bag. ....	....	....	.25	....	....	....	.20	....	....
(71) Wall Board (Please Note Kind)*.....	Per Sq. Ft. .0425	.04	.0385	.04	....	....	....	.04	.0375	.0375

*(Above item 49)—No lumber revisions received for this issue from this city.

Lime (bulk, Item No. 1)—Baltimore, no credit for sacks; Atlanta, 15¢ credit for sacks; Trenton, 70 lb. bu. (Barreled) Trenton, not handled locally, supply from Philadelphia.

Hydrated (Items 17, 18)—Ton lot price, Richmond, Norfolk, Huntington; Atlanta, barrel price.

Common Brick (6)—Baltimore, f. o. b. job, mfrs. ret. price. Atlanta, shale.

Fire Clay (13)—Washington, Atlanta, no credit for sacks; Wheeling, 15¢ credit for sacks; Fairmont, Huntington, 10¢ credit for sacks; bulk only, Richmond.

Gravel (14)—Ton price only. Trenton, Wheeling, Washington.

Hollow Bldg. Tile (Item 16)—Atlanta, shale, clay, \$51.90; Trenton, Baltimore, Fairmont, load bearing.

Hair (19)—Bu. of 4 lb., Atlanta; Fairmont, per lb.

Metal Lath (Item 21)—Richmond, Baltimore, Gauge No. 27, 80 lb., Washington, Baltimore; 85 lb., Fairmont; Wheeling, 85 lbs. Little demand.

Paving Block (31)—Huntington, 55 lb., Washington, Fairmont; Trenton, known as paving brick.

Plaster Board (Item 32)—Trenton, price for each.

Sand (Items 33-34)—Atlanta, washed.

Wall Plaster (Items 38, 39, 40, 41)—Sacks, 15¢ credit, Washington, Wheeling, Huntington, Atlanta, Fairmont; sacks 14½¢ credit, Richmond; returned sacks 10¢. Norfolk.

Wall Board (Item 71)—Brand of Wall Board will be furnished upon request.

Stucco, Magnesite (Item 69)—Fairmont, per ton.

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	Miami, Fla.	Tampa, Fla.	St. Petersburg	Louisville	Lexington	Memphis, Tenn.	Nashville, Tenn.	Birmingham,* Ala.	New Orleans, La.	El Paso, Tex.	Houston
(1) Bulk Lime.....per cwt.	....	....	\$0.70	\$0.93*	1.30*	\$0.57*	....	\$0.75	\$0.625	\$0.925*	....
(2) Barreled Lime, 180 lbs. (net) bbls.....per bbl.	\$3.00	2.25	\$2.75	\$2.35*	2.25	\$2.00	2.35	....	1.88	2.00	2.75
(3) Barreled Lime, 280 lbs. (net) bbls.....per bbl.	....	....	....	....	....	....	....	....	....	....	....
(4) Crushed Stone.....per ton	....	....	....	3.00	....	....	....	....	1.50	....	....
(5) Crushed Stone.....per yd.	2.50	6.00*	5.75	....	....	2.50*	3.15	....	....	....	3.60
(6) Common Brick, standard quality and sizes (8x2½x3¾) per M.	25.00	18.00*	17.00	18.00	18.00	14.50	15.00	....	14.57	16.00	17.00*
(7) Corner Bead, galvanized.....per ft.	.06	.05	.07	.05	.06	.06	.05	....	.07	.05	.045
(8) Drain Tile, 6 in.....per ft.	....	....	.084	.11	.09	.14	....	.12	....	.18	....
(9) Flue Lining, 8½ in x 8½ in.....per ft.	.30	.40	.45	.27	.35	.34	.30	....	.30	....	.44
(10) Flue Lining, 8½ in. x 13 in.....per ft.	.45	.50	.55	.405	.50	.51	.45	....	.42	....	.65
(11) Fire Brick, Standard 9-in. No. 1 clay.....per M.	85.00	80.00*	70.00	70.00	60.00	62.00	63.00	....	56.40	90.00*	60.00
(12) Fire Clay, in 100-lb. cloth bags, including bags.....per ton	40.00*	20.00	40.00	15.00*	20.00	16.00*	23.00*	....	14.10	....	20.00*
(13) Gravel, washed.....per yd.	....	....	....	....	3.25	3.25*	2.25	....	3.05	....	3.75
(14) Hollow Building Tile (8x12x12 in.).....per M.	260.00	280.00	230.00	208.40	180.00	180.00	246.30*	....	220.00	240.00	211.00*
(15) Hollow Building Tile (8x5x12 in.).....per M.	180.00	120.00	120.00	92.60	80.00*	90.00	109.50	....	....	90.00	95.00*
(16) Hydrated Lime (masons) in 50-lb. paper bags.....per bag	.65	.50*	.75	.50	.70	.50	.50	....	.41	.60	.49*
(17) Hydrated Lime (finishing) in 50-lb. paper bags.....per bag	.75	.75*	.80	.65	.70	.60	.65	....	.58	....	.49*
(18) Hair.....per bu.	1.00	.75	.75	.75	....	.60	.55	....	.56	....	.85
(19) Metal Lath, Expanded, Gauge No. 24, wt. 3.4 lbs. I.....per yd.	.34*	.42	....	.45	.35	.31	.40	....	.38	.37	.361
(20) Metal Lath, Expanded, Gauge No. 25, wt. 3 lbs.....per yd.	.34*	.30*	....	....	.35	....	....	....	.38	.40*	....
(21) Mortar Color, red.....per lb.	.05	.04	.04	.035	.03	.02	.05	....	.05	.035*	.0325
(22) Partition Tile, Clay (4x12x12 in.).....per M.	....	....	150.00	104.20	96.00	120.00	123.20	....	131.60	120.00	130.00*
(23) Partition Tile, Gypsum (4x12x30 in.).....per ft.	....	....	....	....	....	....	.165	....	....	....	.165
(24) Portland Cement, 4 sacks to bbl. (excluding aka.) per bbl.	4.12	3.10	3.60	2.70	3.40	3.18	3.90	....	3.31	3.50	3.15
(25) Extra charge for each cloth sk.....per sk.	.07	.10	.05	.10	.10	.10	.10	....	.10	.10	.10
(26) Paving Block, vitrified (3½x4x8½ in.).....per M.	....	....	....	....	....	....	....	....	40.40	....	....
(27) Plaster Board, ½ in. thick.....per M. sq. ft.	55.00*	40.00*	41.00	50.00	55.00	47.50*	44.00	....	41.36	....	60.00
(28) Sand (Building).....per ton	....	....	1.00	....	3.30	....	....	....	....	1.50	....
(29) Sand (Building).....per yd.	1.50	3.50	1.40	....	3.96	2.17	3.00	....	1.88	1.75	1.50
(30) Sewer Pipe, single strength, off list.....per cent.	*	....	35%	55%	45%	....	50%	....	*	....	*
(31) Wall Coping, 9 in.....per ft.	....	....	....	55%	45%	.23	.20	....	.15	....	.31
(32) Wall Plaster, neat, in paper, in 80-lb. bags.....per ton	....	22.00	....	....	....	....	....	....	....	16.00	....
(33) Wall Plaster, neat, in cloth, 100-lb. sks., inc. sks.....per ton	....	24.00	25.50	25.00	24.00	24.00*	27.00	....	22.36	18.00*	25.00*
(34) Wall Plaster, sanded, in cloth, 100-lb. inc. sks.....per ton	....	....	....	....	....	....	....	....	....	....	....
(35) Wall Plaster, wood fibre, in cloth, 100-lb. inc. sks.....per ton	29.00*	24.00	25.50	25.00	....	24.00*	....	....	....	18.00*	....
(36) Wall Ties, galvanized.....per M.	5.00	4.00	5.00	4.00*	4.50	4.50	5.00	....	4.75	4.00*	5.25*
(37) Wall Plugs.....per M.	....	....	....	30.00	....	18.50	22.50	....	....	....	30.00
(38) Asphalt Shingle ("singles; stripped").....per sq.	10.00	7.75*	8.25†	6.25	....	7.50*	7.65*	....	7.00	....	9.00
(39) Roofing Slate Surf. ("heavy, extra heavy").....per sq.	3.50**	3.00	3.50†	3.00†	4.00*	2.85†	3.00†*	....	3.00	4.00*	3.50**
(40) Roofing Smooth Surf. ("light, medium, heavy").....per sq.	....	3.25†	3.25†	3.25†	3.75†	2.85†	2.90†*	....	2.50	4.00†	3.50†*
(41) Stucco Board, Medium wt.....per M. sq. ft.	....	50.00	....	60.00	....	....	....	....	....	....	....
(42) Stucco Board, Narrow Key.....per M. sq. ft.	....	....	....	....	....	....	....	....	....	....	....
LUMBER ITEMS											
(43) Wood Lath, No. 1 (size 4 ft.).....per M.	11.00	10.00*	9.00*	....	5.50	7.50	8.50	....	7.00	12.00*	8.50*
(44) No. 1 Yellow Pine Dimension 12 to 16 ft.....per M. Board ft.	....	32.00	....	35.00	....	37.50	....	....	34.00	45.00	40.00
(45) 1x10 No. 1 Shiplap, Y. P., all lengths.....per M. Board ft.	....	60.00	....	45.00	....	50.00	....	....	52.00	48.50	45.00
(46) 1x10 No. 2 Shiplap, Y. P., all lengths.....per M. Board ft.	....	35.00	....	35.00	....	35.00	....	....	40.00	40.00	35.00
(47) 1x4 No. 2 Sheathing.....per M. Board ft.	....	30.00	....	30.00	....	30.00	....	....	30.00	....	25.00
(48) 1x4 "B" Flooring.....per M. Board ft.	....	55.00	....	55.00	....	50.00	....	....	50.00	65.00	70.00
(49) Yellow Pine Clear Finish.....per M. Board ft.	....	80.00	....	80.00	....	75.00	....	....	65.00	90.00	75.00
(50) 1x6 "B&B" Drop Siding.....per M. Board ft.	....	55.00	....	....	....	60.00	....	....	67.00	....	60.00
(51) 1x6 No. 1 Common Drop Siding.....per M. Board ft.	....	45.00	....	....	....	50.00	....	....	47.00	50.00	50.00
(52) Cypress Finish Lumber.....per M. Board ft.	....	150.00	....	150.00	....	150.00	....	....	160.00	....	200.00
(53) ½x4 "B" Partition.....per M. Board ft.	....	60.00	....	60.00	....	55.00	....	....	55.00*	70.00	75.00
(54) ½x4 "B" Ceiling.....per M. Board ft.	....	50.00	....	52.50	....	50.00	....	....	52.00	....	45.00*
(55) ½x5 Clear Rdwd. Bevel Siding.....per M. Board ft.	....	60.00	....	....	....	65.00	....	....	....	....	45.00*
(56) Mouldings, Yellow Pine.....over list	....	1.25	....	10%	....	10%	....	....	25%	....	*
(57) Washington 16 in., 5/2 Clears.....per M.	....	....	....	5.50	7.50	6.50	....	....	....	....	7.50
(58) Washington 16 in., 5/2 Clears.....per sq.	....	....	....	....	....	....	....	....	....	....	6.75
(59) Canadian 16 in., 5/2 xxxx Clears.....per M.	....	....	....	....	....	....	....	....	....	....	....
(60) Canadian 16 in., 5/2 xxxx Clears.....per sq.	....	....	....	....	....	....	....	....	....	....	....
(61) 1x6 in-8 in.-10 in.-12 in., No. 1 Yellow Pine Boards.....per M	....	60.00*	....	....	....	....	55.00	....	56.00	55.00*	45.00*
ADDITIONAL ITEMS											
(62) Stucco, Cement.....Per Sq. Yd.	....	....	....	....	....	....	....	....	....	....	.43
(63) Stucco, Magnesite (Note Brand) Not Incl. Bags.....Per Sq. Yd.	....	....	....	....	....	....	....	....	....	....	....
(64) Price and Rebate on Bags.....Per Bag.	....	....	....	.15	.13*	....	....	....	....	....	.15
(65) Wall Board (Please Note Kind)*.....Per Sq. Ft.	.053	.045	....	.04	.055	.042	....	....	.05	....	.046

* (Above item 49)—No lumber revisions received for this issue from this city.
Lime (Item No. 1, bulk)—Nashville, 80 lb. bu. Lexington, 70 lbs.; Houston, c/l. f. o. b. cars; Memphis, f. o. b. cars. **Barreled Lime** (Items 2 and 3), Louisville, blue river lime. **Hydrated Lime** (Items 17, 18)—Tampa, 40 lb. bags, Florida lime; Houston, 40 lb. bags, Memphis f. o. b. cars, per ton; Tampa, 1½ inch.
Common Brick (Item 6)—Tampa, Ala. and Ga; red; Houston, another quotes \$21.00 L. C. L.
Fire Brick (Item 12)—Carload lots, El Paso; Tampa, \$60.00 to

\$80.00.
Fire Clay (Item 13)—15c credit, Nashville; no credit, Louisville, Houston, mfrs. price.
Plaster Board (Item 32)—Miami, Memphis, ½ inch; Tampa, ¼ inch, \$35.00.
Sewer Pipe (Item 35)—Houston various per cent. off list; New Orleans, Miami, list.
Wall Plaster (38, 39, 40, 41)—15c sacks, El Paso, Memphis, Miami; Houston, gross ton, 150 lbs. **Wall Ties** (42)—Corrugated, El Paso, Louisville, Houston.
Roofing, State Surf. (Item 45)—85 lbs. Miami, Nashville, Houston.
Roofing, Smooth Surf. (Item 46)—55 lbs. Nashville, Houston.
Partition Tile Clay (Items 25, 26) (Item 49)—Tampa, St. Petersburg, cypress; Houston, No. 1 Y. P., \$7.50; No. 1 cyp. \$10.00; El Paso, White Pine, another quotes \$60.00. (Item 60)—Houston, ¾x4;
(b) (Item 61)—Houston, ½x6 clear Bevel Siding, Y. P. (Item 62)—Houston, list. (Item 67)—Houston, 12 inches, \$60.00; 4 to 10 inches, \$40.00; Tampa, \$60.00 to \$80.00 El Paso, price for 12 in. only.
Price and rebate on bags (Item 70)—Lexington, 8c on Cement; 13c on Plaster.
Wall Board (Item 71)—Brand of Wall Board will be furnished upon request.

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SOUTHWESTERN AND CENTRAL STATES

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An asterisk (*) after a figure, refers to note below.

A star (★) after city name, denotes no revisions received.

	Dallas, Tex.	Topeka, Kan.	Little Rock, Ark.	Oklahoma City Okl.	Cincinnati Ohio Q.	Cleveland	Columbus	Toledo	Detroit, Mich.	Evansville, Ind.
(1) Bulk Lime	per cwt. ....	....	....	\$1.10	\$0.95	\$1.10	\$0.45	\$0.95	\$0.85	\$0.90
(2) Barreled Lime, 180 lbs. (net) bbls.	per bbl. \$2.75	\$3.00	\$2.50	2.75	2.10	3.45	2.25	....	....	2.00
(3) Barreled Lime, 280 lbs. (net) bbls.	per bbl. ....	....	....	....	....	....	....	....	....	....
(4) Crushed Stone	per ton ....	....	2.00*	3.10	2.90*	3.60	2.75*	3.25	2.50	....
(5) Crushed Stone	per yd. ....	....	....	....	....	4.50	....	....	....	....
(6) Common Brick, standard quality and sizes (8x2½x3½)	per M. 20.00	....	12.50*	17.00	18.00*	14.00	16.50	17.00	16.85	14.00
(7) Corner Bead, galvanized	per ft. .475	....	.06	.06	.06	.04	.05	.04	.03	.04
(9) Drain Tile, 6 in.	per ft. .20	....	.15	.055*	.09	.076	.08	.082	.12	.045
(10) Flue Lining, 8½ in. x 8½ in.	per ft. .45	....	.55	.40	.24	65%*	.20	57%*	.27	.32
(11) Flue Lining, 8½ in. x 13 in.	per ft. .65	....	.70	.55	.36	65%*	.30	57%*	.405	.48
(12) Fire Brick, Standard 9 in. No. 1 clay	per M. 80.00	....	70.00	70.00	54.00	50.00	60.00	47.00	70.00	50.00
(13) Fire Clay, in 100-lb. cloth bags, including bags	per ton 1.25*	....	25.00*	18.00	.73*	12.00*	.70*	11.00	10.00	15.00
(14) Gravel, washed	per yd. ....	....	....	3.10*	2.75*	....	1.25*	3.50*	3.00	1.60
(15) Hollow Building Tile (8x12x12 in.)	per M. 211.00	....	....	170.00	119.00	155.80	....	186.50	....	....
(16) Hollow Building Tile (8x5x12 in.)	per M. 95.00*	....	....	90.00	68.00	50.00	....	75.00	79.00	65.00
(17) Hydrated Lime (masons) in 50 lb. paper bags	per bag .50*	....	.625	.60	.45	.37	.35	.45	.40	.60
(18) Hydrated Lime (finishing) in 50 lb. paper bags	per bag .50*	....	.75	.60	.49	.40	.40	.45	.45	.60
(19) Hair	per bu. .75	....	1.00	....	.55	.75	.65	.75	.20*	.60
(20) Metal Lath, Expanded, Gauge No. 24, wt. 3.4 lbs. t	per yd. .362	.40	.42	.35	.35	.33	.36	.34	.34	.32
(21) Metal Lath, Expanded, Gauge No. 25, wt. 3 lbs.	per yd. ....	....	....	....	....	....	....	....	....	.28
(22) Mortar Color, red	per lb. .09*	....	.03	.0275	.025	.0215	.025	.04	.03	.025
(26) Partition Tile, Clay (4x12x12 in.)	per M. 130.00*	....	....	100.00	60.00	79.90	80.00	97.70	75.00	....
(28) Partition Tile, Gypsum (4x12x30 in.)	per ft. .1525	....	....	....	.18	.21	.15	.17	.185	....
(29) Portland Cement, 4 sacks to bbl. (excluding sks.)	per bbl. 3.20	3.00	3.60	3.80	3.08	2.64	2.85	3.08	3.00	2.80
(30) Extra charge for each cloth sk.	per sk. .10	.10	.10	.10	.10	.10	.10	.08	.07	.10
(31) Paving Block, vitrified (3½x4x8½ in.)	per M. ....	....	....	....	....	....	45.00*	....	....	....
(32) Plaster Board, ½ in. thick	per M. sq. ft. 60.00	....	35.00	45.00	50.00	27.50	37.50	.30*	31.00	40.00
(33) Sand (Building)	per ton ....	....	....	2.20	2.25*	2.75	3.50	2.00	3.00	....
(34) Sand (Building)	per yd. 4.00	....	1.00*	....	2.30*	....	3.50	....	....	1.60
(35) Sewer Pipe, single strength, off list	per cent. 20%	....	....	....	55%	60%	60%	57%	50%	50%
(36) Wall Coping, 9 in.	per ft. .30	....	.35	.37	.18	60%*	50%*	57%*	45%*	.22
(38) Wall Plaster, neat, in paper, in 80 lb. bags	per ton ....	....	....	18.00	21.75	18.00	17.00	....	18.75	....
(39) Wall Plaster, neat, in cloth, 100 lb. sacks, including sacks	per ton 21.00	21.00	27.00*	20.00	25.00	20.00*	....	....	19.00*	21.00
(40) Wall Plaster, sanded, in cloth, 100 lb., including sacks	per ton ....	....	....	....	....	11.50	16.00*	11.40*	13.00*	....
(41) Wall Plaster, wood fibre, in cloth, 100 lb., including sacks	per ton 21.50	....	27.50*	20.50	25.00	20.00	....	14.00	19.00*	23.00
(42) Wall Ties galvanized	per M. 4.00	....	4.75	3.50	4.75	3.00	3.50	3.00	2.75	2.50
(43) Wall Plugs	per M. 27.50	....	25.00	30.00	....	....	....	20.00	....	....
(44) Asphalt Shingle (*singles; †stripped)	per sq. 8.50*	....	8.25*	7.00*	8.50*	5.75*	6.75†	6.50†	5.50†	5.60*
(45) Roofing Slate Surf. (*heavy, †extra heavy)	per sq. 4.00*	3.50†	3.25†	3.00†	....	2.85†	2.75†	3.00†	3.00**	2.60
(46) Roofing Smooth Surf. (*light, †medium, ‡heavy)	per sq. 3.50†	....	2.75†	2.50†	....	2.90†	2.10†	2.90†	2.40†	2.40†*
(47) Stucco Board, Medium wt.	per M. sq. ft. ....	....	....	....	55.00	....	55.00	....	....	....
(48) Stucco Board, Narrow Key	per M. sq. ft. ....	....	....	55.00	55.00	....	55.00	55.00	....	....
LUMBER ITEMS										
(49) Wood Lath, No. 1 (size 4 ft.)	per M. 11.00*	10.00	9.00	....	8.75	13.00*	11.00*	12.50*	....	8.50*
(50) No. 1 Yellow Pine Dimension 12 to 16 ft.	per M. Board ft. 40.00	40.00	27.00	....	54.00	42.50	43.00	....	40.00	....
(51) 1x10 No. 1 Shiplap, Y. P., all lengths	per M. Board ft. 40.00	55.00	35.00	....	54.00*	....	....	....	....	50.00
(52) 1x10 No. 2 Shiplap, Y. P., all lengths	per M. Board ft. 35.00	40.00	27.00	....	47.00*	42.50	38.00	....	37.50	....
(53) 1x4 No. 2 Sheathing	per M. Board ft. 27.50	40.00	23.00	....	54.00	40.00	35.00	....	35.00	....
(54) 1x4 "B" Flooring	per M. Board ft. 70.00	55.00	45.00	....	93.00*	75.00	65.00	....	65.00	....
(55) Yellow Pine Clear Finish	per M. Board ft. 75.00	75.00	65.00	....	106.00	90.00	85.00	....	90.00	....
(56) 1x6 "B&Btr" Drop Siding	per M. Board ft. 50.00	55.00	50.00	....	80.00	70.00	....	....	60.00	....
(57) 1x6 No. 1 Common Drop Siding	per M. Board ft. 47.50	....	40.00	....	72.00	60.00	55.00	....	50.00	....
(58) Cypress Finish Lumber	per M. Board ft. 175.00	140.00	....	....	128.25	140.00	135.00	....	150.00	....
(59) ¾x4 "B" Partition	per M. Board ft. 50.00	....	60.00	....	97.50	70.00	70.00*	....	75.00	....
(60) ½x4 "B" Ceiling	per M. Board ft. 45.00	35.00	....	....	66.25*	50.00	55.00	....	50.00	....
(61) ½x5 Clear Rdwd. Bevel Siding	per M. Board ft. ....	....	....	....	66.25	55.00	58.00	....	60.00	....
(62) Mouldings, Yellow Pine	over list 25%*	25%	15%	....	....	1.50*	1.10	25%	....	25%
(63) Washington 16 in., 5/2 Clears	per M. 7.00	....	....	....	7.95	7.50	7.00	....	6.75	....
(64) Washington 16 in., 5/2 Clears	per sq. ....	....	....	....	....	....	....	....	5.50	....
(65) Canadian 16 in., 5/2 xxxx Clears	per M. ....	....	....	....	....	....	....	....	....	....
(66) Canadian 16 in., 5/2 xxxx Clears	per sq. ....	....	....	....	....	....	....	....	....	....
(67) 1x6 in.-8 in.-10 in.-12 in., No. 1 Com. Yellow Pine Boards	per M. 50.00	55.00*	....	....	72.00	60.00	60.00	....	50.00	....
ADDITIONAL ITEMS										
(68) Stucco, Cement	Per Sq. Yd. ....	....	3.00	....	22.00*	....	....	....	....	....
(69) Stucco, Magnesite (Note Brand) Not Incl. Bags	Per Sq. Yd. ....	....	....	....	....	....	1.50	....	....	....
(70) Price and Rebate on Bags	Per Bag. ....	....	....	.17	....	....	.15	....	.10	....
(71) Wall Board (Please Note Kind)*	Per Sq. Ft. .05	.05	.04	....	.0275	.045	.0425*	.035	.045	....

*(Above item 49)—No lumber received for this issue from this city.

Lime, Hydrated (Item 17, 18)—Dallas, 40 lb. bags.

Crushed Stone (4)—Columbus, f. o. b. tipple stone at quarries; Cincinnati, bowlders; Little Rock, f. o. b. cars.

Common Brick (6)—Little Rock, Cincinnati, f. o. b. cars.

Drain Tile (Item 9)—Oklahoma City, 4-inch.

Flue Lining (10, 11)—Per cent. off list, Toledo, Cleveland.

Fire Clay (Item 13)—Cincinnati, Cleveland, paper; Columbus, Dallas, price per sack, 10c; single

sack rate, no credit on returned sacks, Little Rock.

Gravel (14)—Columbus, tipple, per ton; Cincinnati, Okla. City, per ton; Toledo, Roofing Gravel, per ton.

Hollow Building Tile (Item 15-16)—Dallas (Item 16), Interlocking Tile, \$117.00 per M.

Half (19)—Detroit, per lb.

Mortar Colors (Item 22) Dallas, paste.

Partition Tile, Clay (26, 28)—Dallas, mfrs. price.

Roofing, Slate Surf. (Item 45)—80 lbs. Detroit.

Roofing, Smooth Surf. (Item 46)—55 lbs., Detroit, Evansville.

sheet, 32x36 ft., % in. thick, Toledo.

Sand (38, 34)—Cincinnati (33) concrete an (34) fine; Little Rock, f. o. b. yard.

Wall Coping (38, 37)—Per cent. off list, Toledo, Columbus, Cleveland.

Wall Plaster (39, 40, 41)—Returned sacks, 15c, Cleveland, Little Rock; sacks, 12c each, Detroit; Columbus, 80 lb. paper; Toledo, 8c sacks.

Water Plaster (39, 40, 41)—Returned sacks, 15c, Little Rock, Toledo, 8c sacks.

Wooden Siding (38, 39, 40, 41)—Columbus, 15c, Toledo, 12c each, Detroit; Toledo, 12c each, Toledo, 12c each, Toledo.

(Item 49)—Cleveland, white pine; Evansville, pine; Columbus, chestnut; Toledo, cypress; Toledo, hemlock.

(Item 51)—Cleveland; No. 2 Commercial; (Item 52)—Cleveland, No. 3; (Item 54)—Cleveland, No. 1 C.; (Item 59)—Toledo, Select Com. Cypress D48;

(Item 60)—Cleveland, % in.

(Item 62)—Cleveland, per 100 inches; Dallas, white pine; (Item 67)—Topeka, 12-inch, \$65.00.

Stucco, Cement (Item 68)—Cleveland, per ton.

Wall Board; (Item 71)—Brand of Wall Board will be furnished upon request. Toledo, 3½c to 4½c depending on quantity bought.

RETAIL PRICE QUOTATIONS — Published by special arrangement with *Building Supply News*, Chicago
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delivered-on-the-job, unless otherwise noted.

An asterisk (*) after a figure, refers to note below.

A star (★) after city name, denotes no revisions received.

		Ft. Wayne	Indianapolis	South Bend	Terre Haute	Bloomington, Ill.	Chicago	Moline★	Pearl
(1)	Bulk Lime.....	per cwt.	\$0.85	\$0.83	\$1.75	....	....	\$0.65*	\$0.80
(2)	Barreled Lime, 180 lbs. (net) bbls.	per bbl.	....	....	3.25	....	\$2.75	2.40	1.70
(3)	Barreled Lime, 280 lbs. (net) bbls.	per bbl.	....	....	....	....	....	....	\$2.75
(4)	Crushed Stone.....	per ton	4.50	5.00	....	\$3.00	4.00	....	....
(5)	Crushed Stone.....	per yd.	....	5.63	....	....	....	2.75	3.75
(6)	Common Brick, standard quality and sizes (8x2½x3¾)	per M.	18.00	18.50	20.00	17.00	20.00	....	18.00
(7)	Corner Bead, galvanized.....	per ft.	.06	.05	.06	.06	.06	.04	.045
(9)	Drain Tile, 6 in.....	per ft.	.07	.12	.04	....	.09	.10	.11
(10)	Flue Lining, 8½ in. x 8½ in.....	per ft.	.36	.65	.33	.30	.30	.24	.35
(11)	Flue Lining, 8½ in. x 13 in.....	per ft.	....	.54	1.00	.495	.40	.45	.45
(12)	Fire Brick, Standard 9 in. No. 1 clay.....	per M.	70.00	65.00	55.00	60.00	75.00	70.00	70.00
(13)	Fire Clay, in 100-lb. cloth bags, including bags.....	per ton	13.00	10.50	15.00*	15.00*	20.00*	18.00*	12.00
(14)	Gravel, washed.....	per yd.	2.50	....	2.15	3.00*	4.45*	2.75	3.15
(15)	Hollow Building Tile (8x12x12 in.).....	per M.	....	157.75	205.00	....	....	127.00	135.00
(16)	Hollow Building Tile (5x8x12 in.).....	per M.	70.00	67.50	100.00	....	75.00	59.00	65.00
(17)	Hydrated Lime (masons) in 50-lb. paper bags.....	per bag	.60	.42	.475	.50	.60*	.45	.45
(18)	Hydrated Lime (finishing) in 50-lb. paper bags.....	per bag	.60	.50	.525	.55	.60*	.50	.60
(19)	Hair.....	per bu.	.80	.60	.75	....	....	.50	.70
(20)	Metal Lath, Expanded, Gauge No. 24, wt. 3.4 lbs. t.	per yd.	.44	.36	.37	.40	....	.31	.35
(21)	Metal Lath, Expanded, Gauge No. 25, wt. 3 lbs.	per yd.	.42	....	.32	.30	.35	.29	.34
(22)	Mortar Color, red.....	per lb.	.03	.03*	.05	.04	.05	.05*	.04
(26)	Partition Tile, Clay (4x12x12 in.).....	per M.	....	95.00	100.00*	....	....	72.00	....
(27)	Partition Tile, Gypsum (3x12x30 in.).....	per ft.	....	153	....	....	....	.115	.14
(28)	Partition Tile, Gypsum (4x12x30 in.).....	per ft.	....	.191	....	....	....	.14	.16
(29)	Portland Cement, 4 sacks to bbl. (excluding sks.).....	per bbl.	3.20	3.40	3.00	2.75	2.80	2.20	2.60
(30)	Extra charge for each cloth sk.	per sk.	.10	.07	.10	.10	.10	.10	.10
(31)	Paving Block, vitrified (3½x4x8½ in.).....	per M.	70.00	....	50.00	....	....	35.00	35.50*
(32)	Plaster Board, 3½-in. thick.....	per M. sq. ft.	50.00	40.00	35.00	35.00	35.00	30.00	40.00
(33)	Sand (building).....	per ton	3.00	5.00	....	....	3.50	....	....
(34)	Sand (building).....	per yd.	4.05	3.00	2.15	3.00*	4.00*	2.50	2.05
(35)	Sewer Pipe, single strength, off list.....	per cent.	45%	45%	50%	60%	50%	60%	42%
(36)	Wall Coping, 9 in.....	per ft.	.26	.25	.22	60%*	.25	.16*	.25
(38)	Wall Plaster, neat, in paper, in 80-lb. bags.....	per ton	22.50	21.25	21.00	20.00	20.00	....	19.00
(39)	Wall Plaster, neat, in cloth, 100-lb. incl. sks.....	per ton	....	23.00*	23.00*	23.00	23.00*	18.00*	21.00
(40)	Wall Plaster, sanded, in cloth, 100-lb. incl. sks.....	per ton	....	12.00*	....	....	23.00	15.00	....
(41)	Wall Plaster, wood fibre, in cloth, 100-lb. incl. sks.....	per ton	23.75	22.50*	23.00	23.00*	18.50*	22.00	22.75
(42)	Wall Ties, galvanized.....	per M.	4.75	3.00	3.75	3.50	5.00	4.75	3.75
(43)	Wall Plugs.....	per M.	30.00	25.00	25.00	....	10.00	23.00	23.00
(44)	Asphalt Shingle (*singles; †stripped).....	per sq.	7.50*	8.00	7.00†	7.50*	8.00*	6.75*	7.50
(45)	Roofing Slate Surf. (*heavy, extra heavy).....	per sq.	3.00*	3.00*	3.00†	3.00*	3.75**	2.75	3.50*
(46)	Roofing Smooth Surf. (*light, †medium, ‡heavy).....	per sq.	2.55†	3.25‡	2.75†	2.75‡	3.50**	....	3.25‡
(47)	Stucco Board, Medium wt.	per M. sq. ft.	....	50.00	55.00	60.00	45.00	55.00	....
(48)	Stucco Board, Narrow Key	per M. sq. ft.	40.00	....	60.00	....	....	60.00	....
LUMBER ITEMS									
(49)	Wood Lath, No. 1 (size 4 ft.).....	per M.	8.00	11.25	12.50	10.00	12.50*	....	12.00*
(50)	No. 1 Yellow Pine Dimension 12 to 16 ft.	per M. Board ft.	....	....	45.00	42.00	45.00	....	49.00
(51)	1x10 No. 1 Shiplap, Y. P., all lengths.....	per M. Board ft.	....	....	65.00	50.00	60.00	....	55.00
(52)	1x10 No. 2 Shiplap, Y. P., all lengths.....	per M. Board ft.	....	....	40.00	40.00	40.00	....	42.00
(53)	1x4 No. 2 Sheathing.....	per M. Board ft.	....	....	40.00	35.00	40.00	....	40.00
(54)	1x4 "B" Flooring.....	per M. Board ft.	....	....	65.00*	60.00	70.00	....	75.00
(55)	Yellow Pine Clear Finish.....	per M. Board ft.	....	....	110.00*	80.00	85.00	....	90.00
(56)	1x6 "B&B" Drop Siding.....	per M. Board ft.	....	....	....	60.00	....	....	75.00
(57)	1x6 No. 1 Common Drop Siding.....	per M. Board ft.	....	....	60.00	50.00	65.00	....	50.00
(58)	Cypress Finish Lumber.....	per M. Board ft.	....	....	150.00	....	125.00	....	140.00
(59)	½x4 "B" Partition.....	per M. Board ft.	....	....	80.00	60.00	75.00	....	75.00
(60)	½x4 "B" Ceiling.....	per M. Board ft.	....	....	60.00	50.00	60.00	....	60.00
(61)	½x5 Clear Rdwd. Bevel Siding.....	per M. Board ft.	....	....	65.00	60.00	60.00	....	56.00
(62)	Mouldings, Yellow Pine.....	over list	....	....	....	....	10%	....	* 25%
(63)	Washington 16 in., 5/2 Clears.....	per M.	....	....	....	....	....	6.50	7.00
(64)	Washington 16 in., 5/2 Clears.....	per sq.	....	....	6.50	5.00	....	....	....
(65)	Canadian 16 in., 5/2 xxxx Clears.....	per M.	....	....	6.75	....	7.50	....	6.50
(66)	Canadian 16 in., 5/2 xxxx Clears.....	per sq	....	....	7.00	....	....	....	....
(67)	1x6 in.-8 in.-10 in.-12 in., No. 1 Com. Yellow Pine Boards.....	per M.	....	....	60.00	55.00	60.00*	....	55.00
ADDITIONAL ITEMS									
(68)	Stucco, Cement.....	Per Sq. Yd.	40.00*	....	....	....	....	....	....
(69)	Stucco, Magnesite (Note Brand) Not Including Bags.....	Per Sq. Yd.	55.00*	1.00*	1.05	....	....	....	....
(70)	Price and Rebate on Bags.....	Per Bag.	.20	.15	.20	....	....	....	....
(71)	Wall Board (Please Note Kind)*	Per Sq. Ft.	.045	.05	.06	....	.04	.045	.05

†Ft. Wayne—5% discount to contractors and manufacturers for payment on or before 10th of month following purchase, except shingles, roofing and common brick, on which regular 2% discount will be allowed.
 *(Above Item 49)—No lumber revisions received for this issue from this city.

†Means no cloth bags used.
 Lime (bulk, Item 1)—Per bbl, 200 lb., Chicago.

Fire Clay (13)—Returned sacks 15c, South Bend, Bloomington; paper sacks, Chicago, Terre Haute; Peoria, bulk \$7.80.
 Gravel (14)—Terre Haute, 3000 lb. yd.; Bloomington, 2500 lb. yd.
 Mortar Color (22)—Indianapolis, Chicago, 100 lb. lots.
 Partition Tile (Item 26)—South Bend, wagon load.
 Paving Block (Item 31)—Peoria, 3x4x8½ in.
 Sand (33, 34)—Terre Haute,

2600 lb. yd.; Bloomington, 2500 lb. yd.; list, Terre Haute; Chicago, double slant.
 Wall Plaster (38, 39, 40, 41)—Returned sacks, 15c, Bloomington.
 Roofing, Slate Surf. (Item 45)—85 lbs. Bloomington.
 Roofing, Smooth Surf. (Item 46)—60 lbs., Bloomington.
 (Item 49)—Peoria, Bloomington,

Moline, cypress; (Item 54)—South Bond "B & B" (Item 55)—South Bend, Rough. (Item 62)—Moline, list; (Item 67)—Bloomington, 6 to 10 inches, 12 inches, \$65.00.
 Stucco, Cement (Item 68)—Ft. Wayne, per ton.
 Stucco, Magnesite (Item 69)—Ft. Wayne, per ton; Indianapolis, not including dash.
 Wall Board (Item 71)—Brand of Wall Board will be furnished upon request.

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received.

NORTH CENTRAL STATES

		Green Bay, Wis.	Milwaukee	Minneapolis St. Paul★ Minn.	Davenport, Ia.	Des Moines	Sioux City	Kansas City Mo.	St. Louis, Mo.	Lincoln, ★ Neb.	Denver, Colo.
(1) Bulk Lime.....	per cwt.	\$2.00	\$1.50	\$1.70*	\$2.00	....	\$1.30*	\$1.00	\$0.70	....	\$0.95*
(2) Barreled Lime, 180 lbs. (net) bbls.....	per bbl.	....	2.00	2.50*	3.50	\$2.805	2.40	2.80	2.50	\$2.60	2.95*
(3) Barreled Lime, 280 lbs. (net) bbls.....	per bbl.	....	....	....	....	....	....	....	....	....	....
(4) Crushed Stone.....	per ton	2.75	2.40*	....	....	4.50	4.50	....	2.30	3.50*	....
(5) Crushed Stone.....	per yd.	....	....	3.00	....	....	....	....	2.83	4.73*	....
(6) Common Brick, standard quality and sizes (8x2½x3½).....	per M.	14.00	18.00	18.00	17.50	20.00	19.50	22.00	17.00*	17.00*	14.00
(7) Corner Bead, galvanized.....	per ft.	.05	.05	.04	.035	.055	.045	.05	.035	.05	.05
(8) Drain Tile, 6 in.....	per ft.	.08	.09	.09	.10	.10	....	.0625	.15	.10	....
(10) Flue Lining, 8½ in. x 8½ in.....	per ft.	.27	.30	.32	.35	.385	.32*	.27	.27	.35	....
(11) Flue Lining, 8½ in. x 13 in.....	per ft.	.405	.40	.45	.50	.55	.48*	.40	.41	.55	....
(12) Fire Brick, Standard 9 in. No. 1 Clay.....	per M.	55.00*	75.00	65.00	58.00	67.50	65.00*	55.00	41.00	57.50	35.00
(13) Fire Clay, in 100-lb. cloth bags, inc. bags.....	per ton	15.00*	20.00	12.00	15.00	17.30*	20.00*	10.00	11.00	25.00	9.50
(14) Gravel, washed.....	per yd.	2.40*	2.25*	2.00	2.10	2.15*	3.50	4.50	2.15*	....	2.00
(15) Hollow Building Tile (8x12x12 in.).....	per M.	170.00*	150.00	165.00	....	....	130.50	....	....	....	....
(16) Hollow Building Tile (8x5x12 in.).....	per M.	105.00	70.00	75.50	113.00	85.00	80.00	100.00	75.00	73.50	85.00
(17) Hydrated Lime (masons) in 50 lb. paper bags.....	per bag	.50	.80	.55	.60	.63	.75	.70	.50	.65	.55
(18) Hydrated Lime (finishing) in 50 lb. paper bags.....	per bag	.75	.60	.65	.65	.73	.85	.76	.58	.65	.75
(19) Hair.....	per bu.	.75	.60	1.00	.75	.60	.75	.35	.65	.75	....
(20) Metal Lath, Expanded, Gauge No. 24, wt. 3.4 lbs. t.....	per yd.	.30	.30	.32	.32	.39	.316	.35	.2933	.39	.3243
(21) Metal Lath, Expanded, Gauge No. 25, wt. 3 lbs.....	per yd.	.28	.35*	.31	....	....	2885*	.32*	.24	....	.3328*
(22) Mortar Color, red.....	per lb.	.05	.03	.035	.045*	.045	.03	.025	.2933	.035	.0495
(26) Partition Tile, Clay (4x12x12 in.).....	per M.	120.00	85.00	85.00	....	150.00	90.00	140.00	97.00	....	....
(28) Partition Tile, Gypsum (4x12x30 in.).....	per ft.	*	.165	.1725	....	.17	.1275	....	.17	.185	.14
(29) Portland Cement, 4 sacks to bbl. (excluding sks.).....	per bbl.	2.60	2.40	2.45	2.40	3.44	2.80	3.20	2.70	3.30	3.80
(30) Extra charge for each cloth sks.	per sk.	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
(31) Paving Block, Vitrified (3½x4x8½ in.).....	per M.	....	....	45.00	35.50	....	....	....	....	....	....
(32) Plaster Board, % in. thick.....	per M. sq. ft.	35.00	30.00	32.50	50.00	35.50	36.00	36.50	45.00	35.00	30.00
(33) Sand (Building).....	per ton	2.40	2.00	....	....	1.35	2.20	....	2.05	2.00	1.60
(34) Sand (Building).....	per yd.	2.00	2.00	....	1.25	1.35*	3.10	....	3.24	2.70	1.60
(35) Sewer Pipe, single strength, on list.....	per cent	55%*	55%*	....	....	....	40%	....	41%	23%	....
(36) Wall Coping, 9 in.....	per ft.	.22	.25	.25	.25	.33	.27	.1875	.175	.35	....
(38) Wall Plaster, neat, in paper, in 80 lb. bags.....	per ton	19.00	....	....	....	20.80	17.00	....	22.00	18.00	....
(39) Wall Plaster, neat, in cloth, 100 lb. sks., inc. sks.....	per ton	20.00	21.00*	16.00*	21.00*	20.00*	20.00*	20.00*	24.00*	21.00	20.00
(40) Wall Plaster, sanded, in cloth, 100 lb., inc. sks.....	per ton	20.00	14.50*	....	....	....	....	....	....	....	....
(41) Wall Plaster, wood fibre, in cloth, 100 lb., inc. sks.....	per ton	20.00	21.00*	16.50*	....	21.00*	21.00*	....	21.00*	21.50*	....
(42) Wall Ties, galvanized.....	per M.	5.25	4.00	3.50	4.00	4.25	3.50	3.50	3.25	3.75	5.00
(43) Wall Plugs.....	per M.	....	....	16.50	31.00	20.00	....	....	20.00	25.00	....
(44) Asphalt Shingle (*ingles, fstripped).....	per sq.	6.60*	6.50†	6.50	8.00*	6.30†	8.00†	....	....	7.75*	10.00
(45) Roofing Slate Surf. (*heavy, fextra heavy).....	per sq.	2.75**	3.50†	3.25	2.70	....	....	....	....	....	3.75*
(46) Roofing Smooth Surf. (*light, fmedium, fheavy).....	per sq.	2.85†*	3.00†	2.75†	2.85†	2.48*	....	....	....	4.00†*	3.25*
(47) Stucco Board, Medium wt.....	per M. sq. ft.	....	50.00	60.00*	55.00	45.00	....	....	....	....	....
(48) Stucco Board, Narrow Key.....	per M. sq. ft.	....	55.00	60.00*	60.00	49.50	....	....	....	....	60.00

LUMBER ITEMS

		*	*
(49) Wood Lath, No. 1 (size 4 ft.).....	per M.	10.00	10.00
(50) No. 1 Yellow Pine Dimension 12 to 16 ft.....	per M. Board ft.	35.00	47.00*
(51) 1x10 No. 1 Shiplap, Y. P., all lengths.....	per M. Board ft.	....	101.00
(52) 1x10 No. 2 Shiplap, Y. P., all lengths.....	per M. Board ft.	....	84.00
(53) 1x4 No. 2 Sheathing.....	per M. Board ft.	....	71.00*
(54) 1x4 "B" Flooring.....	per M. Board ft.	....	82.00*
(55) Yellow Pine Clear Finish.....	per M. Board ft.	85.00	105.00
(56) 1x6 "B&B" Drop Siding.....	per M. Board ft.	....	60.00
(57) 1x6 No. 1 Common Drop Siding.....	per M. Board ft.	....	47.00*
(58) Cypress Finish Lumber.....	per M. Board ft.	125.00	....
(59) ¾x4 "B" Partition.....	per M. Board ft.	....	59.00*
(60) ½x4 "B" Ceiling.....	per M. Board ft.	55.00	47.00*
(61) ½x5 Clear Rdwd. Bevel Siding.....	per M. Board ft.	....	61.00*
(62) Mouldings, Yellow Pine.....	over list	60%	50.90
(63) Washington 16 in., 5/2 Clears.....	per M.	5.75	....
(64) Washington 16 in., 5/2 Clears.....	per sq.	....	7.25
(65) Canadian 16 in., 5/2 xxxx Clears.....	per M.	....	....
(66) Canadian 16 in., 5/2 xxxx Clears.....	per sq.	....	....
(67) 1x6 in.-8 in.-10 in.-12 in., No. 1 Com. Yellow Pine Board's	per M.	....	92.00*

ADDITIONAL ITEMS

(68) Stucco, Cement.....	Per Sq. Yd.	....	....	.85	....	....	....	....	1.50	....
(69) Stucco, Magnesite (Note Brand) Not Incl. Bags.....	Per Sq. Yd.	....	2.25	....	....	.85	....	.60	1.20	....
(70) Price and Rebate on Bags.....	Per Bag.	....	.20	....	....	.15	.20	.20	.20	.15*
(71) Wall Board (Please Note Kind)*.....	Per Sq. Ft.	.045	.045	....	.045	.045	....	.045	.055	.055

*(Above Item 49)—No lumber revisions received for this issue from this city.
†Lincoln, all prices less 5 per cent cash 10th of month.
Lime (Item No. 1, bulk)—Per 80 lb. bu., Denver, Sioux City, hydraulic; Minneapolis and St. Paul, per 180 lbs. (Barreled, Items 2, 3) Minneapolis and St. Paul, headed; Denver, 200 and 400 lbs.
Crushed Stone (4, 5)—Lincoln, 1 in. and chips; Milwaukee, net.
Common Brick (Item 6)—St. Louis, hard common. Lincoln, Nebr., price for 1st zone, \$18.00 2nd zone.
Flue Lining (10, 11)—Sioux City, yd.
Sewer Pipe (55)—Milwaukee, 3x12 in.; Green Bay, 3 in. to 24 in. inc.
Fire Clay (13)—Sacks not included. Des Moines, Sioux City;

5c, Green Bay.
Gravel (14)—Des Moines, 3000 lb. yard; Milwaukee, St. Louis, Green Bay, per ton.
Hollow Building Tile (Items 15-16)—Green Bay, another quotes 1225.00.
Metal Lath (Item 20-21)—Milwaukee, Gauge No. 27; Denver, Kansas City, Gauge No. 26; Sioux City, Gauge 27, 2.3 lbs.
Mortar Color (22)—Davenport, discount in quantities.
Partition Tile (Item 28)—Green Bay, prices quoted at time of delivery.
Sand (34)—Des Moines, 3000 lb. yd.
Sewer Pipe (55)—Milwaukee, 3x12 in.; Green Bay, 3 in. to 24 in. inc.
Wall Plaster (39, 40, 41)—Returned sacks 15c, Milwaukee, St. Paul, Pine, Fir; (Item 51)—Sioux City, Fir; (Item 53)—Minneapolis and St. Paul, Pine; (Item 54)—Minneapolis and St. Paul, Fir; (Item 56)—Des Moines, No. 2 Clear Fir; (Item 57) —Minneapolis and St. Paul, No. 2 Clear Fir; (Item 58) —Minneapolis and St. Paul, No. 2 Clear Fir Joint; (Item 60)—Minneapolis and St. Paul, %x4, No. 2 Clear Fir; Des Moines, No. 2 Clear Fir, 4 and 6 inches; (Item 61)—Minneapolis and St. Paul, Red Cedar. (Item 62)—Kansas City, Sioux City, list; (Item 63)—Minneapolis and St. Paul, 6 to 12 inches. Ex*A Red Cedar; (Items 65 and 66)—Des Moines, Premium Shingle. (Item 67)—Minneapolis and St. Paul, 8 in., \$96.00; 10-in., \$101.00; 12-in., \$106.00; Kansas City, 6 in. to 10 in., \$42.50. 12 in., \$53.50.
Price and rebate on bags (Item 69)—Lincoln, Cement 10c, Plaster, 15c.
Wall Board (Item 71)—Brand of Wall Board will be furnished upon request.

RETAIL PRICE QUOTATIONS — Published by special arrangement with *Building Supply News*, Chicago
BUILDING SUPPLIES LISTED. **WESTERN AND PACIFIC STATES** **CANADA**

All prices are retail,

delivered-on-the-job, unless otherwise noted.
 An asterisk (*) after a figure, refers to note below.
 A star (*) after city name, denotes no revisions received.

	Butte, Mont.	Cheyenne, Wyo.	Los Angeles, Calif.	San Diego	San Francisco	Portland, Ore.	Seattle, Wash.	Winnipeg Man.	Toronto, Ont.	Halifax N.S.	Quebec*
(1) Bulk Lime.....	per cwt. \$0.90*	....	\$1.00	\$1.25	....	*	....	\$0.58*	\$0.825	\$0.75	....
(2) Barreled Lime, 180 lbs. (net) bbls.....	per bbl.	\$3.50	2.75	2.10*	2.65	\$3.50	\$3.75	3.55	....	3.40*	3.00
(3) Barreled Lime, 280 lbs. (net) bbls.....	per bbl. ....	....	....	....	....	....	....	....	....	5.65*	....
(4) Crushed Stone.....	per ton	....	....	2.12	....	....	....	....	....	2.445*	.15* 2.50
(5) Crushed Stone.....	per yd.	....	1.75*	....	....	....	....	4.35	2.1875*	3.30	....
(6) Common Brick, standard quality and sizes (8x2½x3¾) per M. 21.00	22.00*	....	19.00	18.00	17.50	17.00*	19.00	18.00	18.00	20.00	16.50*
(7) Corner Bead, galvanized.....	per ft. ....	.05	.05	.06	.035	.05	.06	.04	....	.045	.08
(9) Drain Tile, 6 in.....	per ft. ....	....	.0975*	.14	.065	.08	.10*	.15	.11	....	.115
(10) Flue Lining, 8½ in. x 8½ in.....	per ft. ....	....	.3375	.50	.38	.45	.40	.55	.315	.35	....
(11) Flue Lining, 8½ in. x 13 in.....	per ft. ....	....	.4875	.72	.55	.65	.60	.75	.45	.55	....
(12) Fire Brick, Standard 9 in. No. 1 clay.....	per M. 80.00	....	....	70.00	70.00	85.00	80.00	85.00	80.00	90.00	74.50
(13) Fire Clay, in 100-lb. cloth bags, including bags.....	per ton 20.00	25.00	12.50	30.00*	20.00	20.00	24.00	35.00	22.00	22.00*	22.50
(14) Gravel, washed.....	per yd. 3.00	....	....	2.78	1.25	1.35*	....	3.15	1.35	3.65*	1.75
(15) Hollow Building Tile (8x12x12 in.).....	per M. 15.00*	....	235.00	....	180.00	....	280.00	....	....	....	....
(16) Hollow Building Tile (8x5x12 in.).....	per M. 15.00*	....	100.00*	120.00	112.00	95.00	110.00	105.00	....	....	....
(17) Hydrated Lime (masons) in 50 lb paper bags.....	per bag 1.25	.70*	1.00*	.85	1.10*	.6375	....	.60	.5563	.75	.67
(18) Hydrated Lime (finishing) in 50 lb. paper bags.....	per bag ....	....	.65	.90	....	.6375	24.00	.60	.5813	.80	....
(19) Hair.....	per bu. .75	....	.60	.60*	....	....	....	1.00	2.50*	....	....
(20) Metal Lath, Expanded, Gauge No. 24, wt. 3.4 lbs t.....	per sk. .42	.35	.36	.3575	.40	.39	.315	....	.30	.30*	....
(21) Metal Lath, Expanded, Gauge No. 25, wt. 3 lbs.....	per yd. .38	.3175	....	.3175	.36	....	....	....	....	....	....
(22) Mortar Color, red.....	per lb. .06	.07	.07	.05	.075	.09	.06	.09	.0275	.10	.10
(26) Partition Tile, Clay (4x12x12 in.).....	per M. ....	....	103.00*	140.00	....	105.00	120.00	203.00	85.00	.20*	....
(28) Partition Tile, Gypsum (4x12x30 in.).....	per ft. ....	....	....	....	....	....	....	.165	....	....	....
(29) *Portland Cement, 4 sacks to bbl., (excluding sks.) per bbl. 3.70	4.40	3.41*	3.92	3.35	3.45	3.65	4.00	4.20	4.40	4.28	....
(30) Extra charge for each cloth sk.....	per sk. .10	.10	.15	.12	.15	.15	.05	.20	.20	.20	....
(31) Paving Block, vitrified (3½x4x3½ in.).....	per M. ....	....	55.00	....	60.00	48.00	....	....	....	....	....
(32) Plaster Board 3½ in. thick.....	per M. sq. ft. 65.00	65.00*	....	50.00	....	50.00	.35*	51.00	35.00	37.50	46.00
(33) Sand (building).....	per ton ....	....	1.63	....	1.35	....	....	1.40*	2.50	2.15	....
(34) Sand (building),.....	per yd. 2.50	1.50	....	....	1.35	1.50	3.15	3.50	3.75	....	....
(35) Sewer Pipe, single strength, off list.....	per cent. ....	....	10%	....	20%	....	.35*	40%	....	20%	....
(36) Wall Coping, 9 in.....	per ft. ....	....	....	....	....	.20	.35	.36	....	....	....
(38) Wall Plaster, neat, in paper, in 80 lb. bags.....	per ton 22.00	....	24.00*	26.00*	23.50*	22.00	23.00*	24.50	18.50	19.00	28.00
(39) Wall Plaster, neat, in cloth, 100 lb. incl. sks.....	per ton ....	....	....	....	....	....	26.00*	22.50	22.00	....	....
(40) Wall Plaster, sanded, in cloth, 100 lb. incl. sks.....	per ton ....	....	....	....	....	....	....	14.00	....	....	....
(41) Wall Plaster, wood fibre, in cloth, 100 lb. incl. sks.....	per ton 21.00	....	....	....	....	23.00*	26.00*	12.50*	3.15*	....	....
(42) Wall Ties, galvanized.....	per M. ....	....	11.50	7.00	6.30	6.00	....	5.00*	....	7.00	4.00
(43) Wall Plugs.....	per M. ....	....	26.00	26.00	30.00	22.50	23.00	....	20.00	....	....
(44) Asphalt Shingle (*singles; fstripped).....	per sq. ....	....	....	....	12.00	....	10.50	6.25*	10.50	7.50	....
(45) Roofing Slate Surf. (*heavy, extra heavy).....	per sq. ....	....	3.50*	3.25*	4.50**	3.25*	3.50**	5.10†*	3.25*	4.90†	3.90†
(46) Roofing Smooth Surf. (*light, fmedium, hheavy).....	per sq.	3.75§	3.75§*	3.75§*	3.50**	3.60**	3.20*	4.00§*	3.60§*	4.90§*	3.75§
(47) Stucco Board, Medium wt.....	per M. sq. ft. ....	....	....	46.00*	....	45.00	65.00	....	....	....	....
(48) Stucco Board, Narrow Key.....	per M. sq. ft. ....	....	....	....	....	....	....	....	....	....	....
LUMBER ITEMS											
(49) Wood Lath, No. 1 (size 4 ft.).....	per M. 9.00*	12.00	15.00	12.50	10.00	5.50*	7.50	11.00*	....	8.00	....
(50) No. 1 Yellow Pine Dimension 12 to 16 ft.....	per M. Board ft. 30.00	35.00*	....	37.00	20.00*	20.00*	18.00*	....	....	....	....
(51) 1x10 No. 1 Shiplap, Y. P., all lengths.....	per M. Board ft. 45.00*	42.50*	....	44.00	55.00*	20.00	18.00*	....	....	....	....
(52) 1x10 No. 2 Shiplap, Y. P., all lengths.....	per M. Board ft. 35.00*	....	....	39.00	....	14.00*	14.00*	....	....	....	....
(53) 1x2 No. 2 Sheathing.....	per M. Board ft. 40.00	30.00*	....	29.00	25.00	11.00	13.00	....	....	....	....
(54) 1x4 "B" Flooring.....	per M. Board ft. 75.00*	55.00*	....	81.00	70.00	35.00*	45.00*	....	....	....	....
(55) Yellow Pine Clear Finish.....	per M. Board ft. 100.00	100.00	....	100.00	....	55.00*	70.00*	....	....	....	....
(56) 1x6 "B&Btr" Drop Siding.....	per M. Board ft. 50.00	55.00	....	68.00	....	35.00*	40.00	....	....	....	....
(57) 1x6 No. 1 Common Drop Siding.....	per M. Board ft. 40.00	....	....	....	....	25.00	....	....	....	....	....
(58) Cypress Finish Lumber.....	per M. Board ft. ....	....	....	....	....	....	....	....	....	....	....
(59) ¾x4 "B" Partition.....	per M. Board ft. 85.00	55.00	....	65.00	....	35.00*	40.00	....	....	....	....
(60) ½x4 "B" Ceiling.....	per M. Board ft. 50.00	45.00	....	59.00	....	....	38.00	....	....	....	....
(61) ½x5 Clear Rdwd. Bevel Siding.....	per M. Board ft. 50.00*	75.00	....	48.50	....	....	54.00*	....	....	....	....
(62) Mouldings, Yellow Pine.....	over list *	....	....	....	....	25%	*	....	....	....	....
(63) Washington 16 in., 5/2 Clears.....	per M. 5.00	5.50	....	6.00*	4.40	3.50	4.50	....	....	....	....
(64) Washington 16 in., 5/2 Clears.....	per sq. 4.00*	....	....	....	4.90	....	....	....	....	....	....
(65) Canadian 16 in., 5/2 xxxx Clears.....	per M. ....	....	....	....	....	....	....	....	....	....	....
(66) Canadian 16 in., 5/2 xxxx Clears.....	per sq. ....	....	....	....	....	....	....	....	....	....	....
(67) 1x6 in.-8 in.-10 in.-12 in. No. 1 Com. Yellow Pine Boards	per M. 45.00	....	....	38.00	....	25.00*	18.00*	....	....	....	....
ADDITIONAL ITEMS											
(68) Stucco, Cement.....	Per Sq. Yd. ....	....	....	....	....	....	....	....	....	....	....
(69) Stucco, Magnesite (Note Brand) Not Incl. Bags.....	Per Sq. Yd. ....	....	....	....	....	....	....	....	....	....	....
(70) Price and Rebate on Bags.....	Per Bag. ....	....	....	....	....	....	....	....	....	....	....
(71) Wall Board (Please Note Kind)*.....	Per Sq. Ft. .045	.05	....	.065	.0525	.05	.055	....	....	....	....

*(Above item 49)—No lumber revisions received for this issue from this city.

(*) means no cloth bags used.

(†) above San Diego lbr. prices means all items are Oregon Pine.

(‡) above Winnipeg lbr. prices means 15 per cent off.

(+) above Portland lbr. prices means all items are fir.

Lime (Item No. 1, bulk)—Per 70 lb. bu. Winnipeg; Portland, price on dock. Butte, per bu. (Barreled, Items 2, 3), per 200 lb. bbls. San Diego; Halifax, 200 and 400 lbs. Hydrated (Items 17, 18) Ton rate, Portland; Portland, 15c Los Angeles, Tiger Brand; fine; San Francisco, per 80 lbs.; Cheyenne, 40 lb. paper bags.

Crushed Stone (Items 4, 5)—Toronto, car lot prices. (Item 4), under 2 in. (Item 5), 2 in. and

over. Halifax, per bu. Cheyenne, gravel & sand mixed.

Common Brick (Item 6)—Quebec, another quotes \$16.00; Seattle, Cheyenne, f. o. b. Job.

Drain Tile (Item 9)—Seattle, clay; Los Angeles, f.o.b. factory, cartage extra.

Fire Clay (Item 13)—San Diego, returned sacks, 8c; 15c, Halifax.

Gravel (Item 14)—Portland, price on dock; Halifax, cu. yd.

Hollow Building Tile (Item 15, 16)—Los Angeles, 5½x8x11½ (Heath); Butte, per ton at yard.

Hair (19)—Rope fibre used in

San Diego, per pkg.; Toronto, per 24 lb. bag.

Metal Lath (Item 21)—Quebec, galvanized.

Partition Tile, Clay (Item 26)

—Per sq. ft., Halifax; Los Angeles, f.o.b. factory, cartage extra.

Portland Cement (Item 29)—Los Angeles, L. C. L. Delivered.

Plaster Board (Item 32)—Cheyenne, sheetrock; Seattle, per yd. sand (Item 33)—Toronto, car lots on track.

Sewer Pipe (Item 35)—Winnipeg, price for 4 in.

Wall Plaster (Items 38, 39, 40, 41)—Sacks, 15c, Winnipeg, San Francisco; sacks, 20c, Halifax; sacks, 12c, Los Angeles, San Diego; (Item 41), per bbl., Toronto, Seattle, including sks, 10c each.

Wall Ties (Item 42)—Winnipeg, corrugated.

Roofing Slate Surf. (Item 45)—Los Angeles, 80 lbs.; Seattle, San Francisco, 95 lbs.; San Diego, 55 lbs.; 80 lbs., Winnipeg.

Roofing Smooth Surf. (Item 46)—Toronto, Everlastic; Seattle, San Francisco, Winnipeg, 55 lbs.; 80 lbs., Halifax; Portland, best grade.

Wall Board (Item 71)—Brand

of Wall Board will be furnished upon request.

Stucco Board (Item 47)—San Francisco, button lath, ¾ in. thick.

(Item 49)—Portland, fir: Butte, pine; Winnipeg, 15%. (Items 50, 51, 52)—Cheyenne, San Francisco, (50) fir; (51) Seattle, fir; (52) Butte, No. 3 Shiplap;

(Item 53)—Cheyenne, White Pine.

(Item 54)—Portland, fir; Seattle, S. G. Fir; Cheyenne, \$60.00 &

\$80.00 fir; Butte, V. G. Coast Fir.

(Item 55)—Seattle, Portland, fir; (Item 56)—Portland, fir; (Item 57)—Portland, fir; (Item 58)—Seattle, cedar; Butte, cedar;

(Item 62)—Seattle, Butte, list;

(Item 63) San Diego, 16 in. "A"

6/2; (Item 64)—Butte, 6/2; (Item 65)—Portland, Seattle, fir.

Selected List of Manufacturers' Literature

FOR THE SERVICE OF ARCHITECTS, ENGINEERS, DECORATORS, AND CONTRACTORS

The publications listed in these columns are the most important of those issued by leading manufacturers identified with the building industry. They may be had without charge, unless otherwise noted, by applying on your business stationery to *The Architectural Forum*, 142 Berkeley St., Boston, Mass., or the manufacturer direct, in which case kindly mention this publication.

Listings in this Department are available to any manufacturer at the rate of \$5 per listing per month.

ASBESTOS PRODUCTS

- Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.**
Ambler Asbestos Shingles. Catalog. $5\frac{1}{2} \times 8\frac{1}{2}$ in. 40 pp. Illustrated.
- Ambler Asbestos Corrugated Roofing and Siding. Catalog. $8\frac{1}{2} \times 11$ in. 36 pp. Illustrated. Standard Purlin Spacing Tables.
- Ambler Asbestos Corrugated Roofing and Siding. Catalog. $8\frac{1}{2} \times 11$ in. 20 pp. Illustrated. Prices and specifications.
- Ambler Asbestos Building Lumber. Catalog. $8\frac{1}{2} \times 11$ in. 32 pp. Illustrated.
- Engineers' Data Sheets. Catalog. $8\frac{1}{2} \times 11$ in. 40 pp. Illustrated. Specifications and working sheets for Ambler Asbestos Corrugated Roofing and Siding.
- Johns-Manville, Inc., Madison Ave. & 41st St., New York, N. Y.**
Johns-Manville Asbestos Wood. Booklet. $3\frac{1}{2} \times 6$ in. 32 pp. Illustrated. Prices, construction data. List of uses for asbestos wood.

ASH HOISTS—ELECTRIC AND HAND POWER

- Gillis & Geoghegan, 544 West Broadway, New York, N. Y.**
General Catalog. $8\frac{1}{2} \times 11$ in. 20 pp. Fully illustrated. Contains specifications in two forms (with manufacturer's name and without). Detail $\frac{1}{4}$ " scale for each telescopic model and special material-handling section.
- The Man-Saving Load Lifter. $5\frac{1}{2} \times 8\frac{1}{2}$ in. 8 pp. Illustrated. Describes G&G Telescopic and Non-Telescopic Hoists for handling material in factories.

BALANCES, SASH

- Caldwell Mfg. Company, The, Rochester, N. Y.**
Suggestion for the present-day Architect. Booklet. 6×9 in. 16 pp. Illustrated. Gives full-size dimensions and information for the purpose of writing specifications for Caldwell Sash Balances.

BOILERS—See Heating Equipment

BRICK

- American Face Brick Association, 1151 Westminster Bldg., Chicago, Ill.**
The Story of Brick. Booklet. $7 \times 9\frac{1}{2}$ in. 55 pp. Illustrated. Presents the merits of face brick from structural and artistic standpoints. Tables of comparative costs.
- The Home of Beauty. Booklet. 8×10 in. 72 pp. Color plates. Presents fifty designs for small face brick houses submitted in national competition by architects. Text by Aymar Embury II, Architect. Price 50c.
- A Manual of Face-Brick Construction. Booklet. $8\frac{1}{2} \times 11$ in. Text-book on construction of the brick wall and various uses of face brick. 31 colored plates of brick houses with plans. Price, \$1.00.
- Common Brick Manufacturers Association of America, 1309 Schofield Bldg., Cleveland, Ohio.**
Brick for the Average Man's Home. Book. $8\frac{1}{2} \times 11$ in. 72 pp. Color plates. Book of plans for bungalows, houses and apartments for which working drawings are available. Price \$1.00.
- Brick—How to Build and Estimate. Book. $8\frac{1}{2} \times 11$ in. 72 pp. Illustrated. A manual for the brick builder on estimating and details of brick construction. Price 25c.

BUILDING STONE—See Stone, Building

CAFETERIA EQUIPMENT

- Albert Pick & Company, 208 West Randolph St., Chicago, Ill.**
Equipment for Restaurants, Cafeterias and Lunch Rooms. (Book BH11.) $16\frac{1}{2} \times 11$ in. Illustrated. 86 pp. Shows practically everything required for the modern eating-place, with articles on the planning of cafeterias and other types of eating-places.
- School Cafeterias. (Book BH131.) $16\frac{1}{2} \times 11$ in. 44 pp. Illustrated. Deals with the principle and practice of school feeding, including the co-ordination of domestic science room with the school eating-place. Numerous floor plans of representative installations.

CEMENT

- Carney's Cement Company, Mankato, Minn.** Booklet. 8×10 in. 20 pp. Illustrated. Complete information on product, showing prominent buildings in which this cement has been used.

CONDUIT

- National Metal Molding Co., 1113 Fulton Building, Pittsburgh, Pa.**
Bulletin of all National Metal Molding Products. In correspondence folder. $9\frac{1}{2} \times 11\frac{1}{2}$ in.
- Sheraduct. Circular. 5×8 in. Illustrated.
- Flexsteel. Circular. 5×8 in. Illustrated.

CONSTRUCTION, FIREPROOF

- National Fire Proofing Co., 250 Federal St., Pittsburgh, Pa.**
Standard Fire Proofing Bulletin 171. $8\frac{1}{2} \times 11$ in. 32 pp. Illustrated. A treatise on fire proof floor construction.
- Northwestern Expanded Metal Co., 934 Old Colony Building, Chicago, Ill.**
Fireproof Construction. Catalog. 6×9 in. 72 pp. Illustrated. Handbook of practical suggestions for architects and contractors. Describing Nemco Expanded Metal Lath.
- Fire-proof Construction. Handbook. 6×9 in. 72 pp. Illustrated. Describing Kno-Burn expanded metal lath.
- United States Gypsum Company, 205 West Monroe St., Chicago, Ill.**
Pyrobar Gypsum Tile. Booklet. $8\frac{1}{2} \times 11$ in. 32 pp. Illustrated. Details and specifications for fireproof partitions.
- Bulletins, $8\frac{1}{2} \times 11$ in., containing details and specifications for Pyrobar voids for use with reinforced concrete joist floor construction; Pyrobar roof tile; and monolithic gypsum floors and roofs.

DECORATIVE FABRICS

- M. H. Rogers, Inc., 912 Broadway, New York, N. Y.**
Samples of the following materials will be sent to architects upon request, to meet specific requirements:
Tapestries, velours, damasks, armures, cretonnes, tapestry panels, needlepoints, chair and sofa seats and backs.

DOORS, WINDOWS AND TRIM, METAL

- Dahlstrom Metallic Door Company, 425 Buffalo Street, Jamestown, N. Y.**
Architectural Catalog. 10×14 in. 46 pp. 11 sections. Illustrated. Catalog showing our regular styles and types of hollow metal doors and interior trim. Various types of frames and other architectural shapes also illustrated.
- Architectural Portfolio. 14×18 in. 30 pp. Illustrated. Portfolio of various designs and types of Dahlstrom doors. Drawings and details of each style or type. This is only sent free to reliable architects.

DUMBWAITERS

- Kaestner & Hecht Co., Chicago, Ill.**
Bulletin 520. Describes K. & H. Co. electric dumbwaiters. 8 pp.
- Sedgwick Machine Works, 151 West 15th Street, New York.**
Catalog and Service Sheets. Standard specifications, plans and prices for various types, etc. $4\frac{1}{4} \times 8\frac{1}{4}$ in. 60 pp. Illustrated.

ELECTRICAL EQUIPMENT

- Frink, I. P., Inc., 24th Street and 10th Avenue, New York, N. Y.**
Catalog 415. $8\frac{1}{2} \times 11$ in. 46 pp. Photographs and scaled cross sections. Specialized bank lighting, screen and partition reflectors, double and single desk reflectors and Polaralite Signs.

- Kohler Co., Kohler, Wis.**
Kohler Automatic Power and Light 110 Volt D. C. Booklet. 5×7 in. 32 pp. Illustrated. Describes a standard voltage automatic, electric power and light plant for isolated homes.

- Simplex Wire & Cable Co., 201 Devonshire Street, Boston, Mass.**
Simplex Manual Catalog and reference book. $6\frac{1}{2} \times 4\frac{1}{4}$ in. 92 pp. Contains in addition to information regarding Simplex products, tables and data for the ready reference of architects, electrical engineers and contractors.

- Smyser-Royer Co., 1609 Sansom St., Philadelphia, Pa.**
Exterior Lighting Fixtures. Catalog F. $8\frac{1}{2} \times 11\frac{1}{2}$ in. Illustrated. Illustrates lamp standards, brackets, lanterns and pier lights, for exterior use.

- B. F. Sturtevant Company, Inc., Hyde Park, Boston, Mass.**
Catalog No. 264. $8\frac{1}{2} \times 10\frac{1}{2}$ in. 54 pp. Illustrated. Gives description with diagrams of various types of motors, generators, generating sets, propeller fans, air heaters, and apparatus for special application.

ELEVATORS

- Kaestner & Hecht Co., Chicago, Ill.**
Bulletin 500. Contains 32 pp. Giving general information on passenger elevators for high buildings.

- Otis Elevator Company, 11th Ave. & 28th Street, New York, N. Y.**
Otis Push Button Controlled Elevators. Booklet. 6×9 in. 56 pp. Illustrated. Detailed description of Otis Push Button Elevators. Their uses in residences, stores, institutions, apartment houses, business offices and banks, etc.

- Otis Gravity Spiral Conveyors. Booklet. 6×9 in. 56 pp.** Illustrated. Gravity spiral conveyors for lowering packaged merchandise, boxed, cased and bundled goods in factories, warehouses, terminal buildings, etc.

- Otis Electric Traction Elevators. Booklet. 9×12 in. 28 pp.** Illustrated. Full details and illustrations of Otis geared and gearless traction elevators for all types of buildings.

- Otis Escalators. Booklet. 6×9 in. 36 pp.** Illustrated. Description of step and cleat type single and double file escalators (moving stairways).

- Sedgwick Machine Works, 151 West 15th Street, New York.**
Catalog and descriptive pamphlets. $4\frac{1}{4} \times 8\frac{1}{4}$ in. 70 pp. Illustrated. Descriptive pamphlets on hand power freight elevators, sidewalk elevators, automobile elevators, etc.

FENCES

- American Fence Construction Co., 130 West 34th St., New York.**
Ato Factory Fences. Booklet. 9×12 in. 32 pp. Illustrated. Residential Fences. Booklets. $7 \times 2\frac{1}{2}$ in. Illustrated. A series of booklets on residential fences consisting of photographs and brief descriptions.

- Anchor Post Iron Works, 165 Broadway, New York, N. Y.**
Catalog 51. $8\frac{1}{2} \times 11$ in. 53 pp. Illustrated. Anchor Post Fences for Country Place, Factory or Farm.

- Catalog 54. $8\frac{1}{2} \times 11$ in. 24 pp. Illustrated. Factory Fences.

FIRE DOORS—See Doors, Windows and Trim, Metal

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS — *Continued from page 64***FIREPLACE EQUIPMENT**

Covert Co., H. W., 137 E. 46th Street, New York, N. Y.
 Hints on Fireplace Construction. Catalog. $5\frac{1}{4} \times 8\frac{1}{2}$ in. 11 pp. Illustrated.
 Diagrams of construction and installation of Covert "Improved" and "Old Style" Dampers and Smoke Chambers.

FLOORING

Armstrong Cork & Insulation Co., 132 24th Street, Pittsburgh, Pa.
 Linotile Floors. Catalog. 6×9 in. 40 pp. Color plates. Describes Linotile, a composition of ground cork, wood flour, linseed oil and various gums and pigments in tile form.
Armstrong's Cork Tile Co. (Linoleum Dept.), Lancaster, Pa.
 Armstrong's Linoleum Floors. Catalog. $8\frac{1}{2} \times 11$ in. 54 pp. Color plates. A technical treatise on linoleum, including tables and specifications for installing linoleum floors.
 Speaking of Floors. Booklet. $11\frac{1}{4} \times 15$ in. 16 pp. Color plates.
 Armstrong's Linoleum Pattern Book, 1921. Catalog. $3\frac{1}{2} \times 6$ in. 176 pp. Color plates. Reproductions in color of all patterns of linoleum and cork carpet in the Armstrong line.
 Quality Sample Book. Three books. $3\frac{1}{2} \times 5\frac{1}{2}$ in. Showing all grades and thicknesses in the Armstrong line of linoleum and cork carpets.
Carter Bloxondend Flooring Co., 1303 R. A. Long Bldg., Kansas City, Mo.
 Blox-on-end Flooring. Catalog. $3\frac{1}{4} \times 6\frac{1}{4}$ in. 20 pp. Illustrated. Describing Blox-on-end Flooring and its adaptability to concrete, wood or steel construction; also various methods of installation. Specification Sheet. $8\frac{1}{2} \times 11$ in. 4 pp. Illustrated. Standard specifications in convenient form for architects and engineers as recommended by the American Institute of Architects.
Congoleum Company, Inc. (Linoleum Dept.), Philadelphia, Pa.
 "Specifications for Laying Linoleum and Cork Carpet, according to the Congoleum Company's new method compiled after years of careful research."
 Linoleum Service Sheet. Gives complete printed specifications as well as detail drawings showing application in specific cases such as thresholds, staircases, under radiators, etc.
 Installation and Care of Battleship Linoleum. Booklet. 6×9 in. 24 pp. Illustrated. Instructions as to the uses of Battleship Linoleum, its laying and care.
 Pocket Pattern Book. Descriptive Booklet. $3\frac{1}{2} \times 8\frac{1}{2}$ in. 64 pp. Illustrated. Shows full color reproductions of every grade and color of Linoleum, Inlaid Linoleum, Cork Carpet and also all patterns of the Gold-Seal Line.

The Marbleloid Co., 461 Eighth Ave., New York, N. Y.
 The Universal Flooring for Modern Buildings. Booklet. $6\frac{1}{2} \times 9\frac{1}{2}$ in. 32 pp. Illustrated. Describes uses and contains specifications for Marbleloid flooring, base, wainscoting, etc.
 Marbleloid Flooring for Hospitals. Bulletin. $8\frac{1}{2} \times 11$ in. 4 pp. Illustrated. Describes the especial features of this composition floor for hospital buildings.
 Marbleloid Specifications. Booklet. $8\frac{1}{2} \times 11$ in. 4 pp. Illustrated.
Muller Co., Franklyn R., Waukegan, Ill.
 Asbestone Composition Flooring. Circulars. $8\frac{1}{2} \times 11$ in. Description and Specifications.
Oak Flooring Manufacturers Association, 1014 Ashland Block, Chicago, Ill.
 Modern Oak Floors. Booklet. $6\frac{1}{2} \times 9\frac{1}{2}$ in. 24 pp. Illustrated. A general book that tells the complete story on Oak Flooring.
 Oak Flooring, How and When to Use it. Booklet. $3\frac{1}{2} \times 6\frac{1}{2}$ in. 16 pp. Illustrated. A small, technical book showing the general rules, standard thickness and widths, how to lay, finish and care for oak floors.

FLOOR HARDENERS

General Chemical Company, The, 25 Broad Street, New York, N. Y.
 Hard-N-Tyle for concrete and mortars. Booklet. $3\frac{1}{2} \times 8\frac{1}{2}$ in. 8 pp. Illustrated. Describes use of Hard-N-Tyle as application for hardening concrete floors.
 The Hard-n-tyle Specification. Booklet. $8\frac{1}{2} \times 11$ in. 4 pp. Gives exact specifications for concrete floor finish.
 Making poor concrete floors good and good ones better. Booklet. $8\frac{1}{2} \times 11$ in. 12 pp. Illustrated. Describes effects of Hard-n-tyle on concrete floors, with photographs and data.
Sonsborn Sons, Inc., L., 266 Pearl Street, New York.
 Concrete and Lapidolith. Booklet. $5\frac{1}{2} \times 8\frac{1}{2}$ in. 24 pp. Illustrated. Describing relation of Lapidolith chemical floor hardener to concrete construction.
 Why Lapidoline? Booklet. $8\frac{1}{2} \times 11$ in. 11 pp. Illustrated. Reasons why Lapidolith should be specified.
 Lapidolith Specifications. Circular. $8\frac{1}{2} \times 10\frac{1}{2}$ in. 2 pp.

FURNACES—See Heating Equipment**FURNITURE**

Este Organ Company, Brattleboro, Vt.
 Pipe Organs. Complete specifications and full information furnished to the architect for pipe organ to be installed in any given residence, upon receipt of plans and other particulars.
Hampton Shops, 18 East 50th St., New York, N. Y.
 Glimpses from Hampton Exhibits. Brochure. 16 pp. $5 \times 7\frac{1}{2}$ in. Illustrated. Shows examples of Hampton work and gives one an idea of their resources. Of interest to the client as well as to the architect.
Albert Pick & Company, 208 West Randolph St., Chicago, Ill.
 Hotel, Apartment Hotel and Institution Installations. (Book BH120.) $16\frac{1}{4} \times 11$ in. Illustrated. 160 pp. Pictures and describes Hotel, Apartment Hotel, Club and Institution Installations with many photographs of representative establishments, showing equipment and furnishings in detail. Valuable to architects.
 The "White" Door Bed and Space-Saving Devices. Booklet. $16\frac{1}{4} \times 11$ in. Illustrated. 34 pp. Consists almost exclusively of photographs, floor plans and diagrams, showing door beds, dressing cabinets, kitchen cabinets and other space-saving devices to increase rental values and augment living comfort.

GLASS CONSTRUCTION

Mississippi Wire Glass, 220 Fifth Avenue, New York.
 Mississippi Wire Glass. Catalog. $3\frac{1}{4} \times 8\frac{1}{2}$ in. 32 pp. Illustrated. Covers the complete line.

GRANITE—See Stone, Building**HARDWARE**

Cutter Mail Chute Company, Rochester, N. Y.
 Cutter Mail Chute Model F. Booklet. $4 \times 9\frac{1}{4}$ in. 8 pp. Illustrated.
McKinney Mfg. Co., Pittsburgh, Pa.
 McKinney Cabinet Hardware. Catalog. 6×9 in. 32 pp. Illustrated. Describes complete line of hardware for cabinet and furniture work.
 McKinney Hardware for Sliding Doors. Booklet. 6×9 in. 18 pp. Illustrated. Describes different types of sliding door hardware.
Stanley Works, The, New Britain, Conn.
 Wrought Hardware. Catalog. BJ10. $6\frac{1}{4} \times 10$ in. Color plates. Shows all of the Stanley Works products made of steel from their own mills.
 Eight Garages and their Stanley Garage Hardware. Booklet. $5 \times 6\frac{1}{4}$ in. 32 pp. Illustrated. Illustrations and floor plans of eight typical garages that have been correctly equipped with Stanley Garage Hardware.
 Ball Bearing Butts. Booklet. B8. $5 \times 7\frac{1}{4}$ in. 32 pp. Illustrated. Concise description of various butts manufactured.
 Stanley Specially Designed Garage Hardware. Booklet. B-50. 6×9 in. 24 pp. Illustrated. Detailed pictures and descriptions of various garage hardware equipment.
Vonnegut Hardware Co., Indianapolis, Ind.
 Von Duprin Self-Releasing Fire Exit Devices. Catalog. 12F. 8×11 in. 41 pp. Illustrated.
 "Saving Lives." Booklet. $3\frac{1}{4} \times 6$ in. 16 pp. Illustrated. A brief outline why Self-Releasing Fire Exit Devices should be used.

HEATING EQUIPMENT

American District Steam Company, North Tonawanda, N. Y.
 Bulletin No. 150-AF. 6×9 in. 32 pp. Illustrated. Describes the Adso System of Atmospheric Steam Heating and explains how it saves 20 to 30% of fuel cost. Tells how to figure radiation.
 Catalog No. 21-AF. 6×9 in. 200 pp. Illustrated. Lists and describes the full line of equipment and devices manufactured for use on underground and interior steam mains, expansion joints, steam meters, condensation meters, traps, flange fittings, angle fittings, manhole curbs, alignment guides, etc.
James B. Clow & Sons, 534 S. Franklin Street, Chicago, Ill.
 Gasteam. Catalog. 6×9 in. 16 pp. Illustrated. New radiator using gas for fuel.
Excelco Specialty Works, 119 Clinton St., Buffalo, N. Y.
 Excelco Water Heater. Booklet. 12 pp. 3×6 in. Illustrated. Describing the new Excelco method of generating domestic hot water in connection with heating boilers. (Firepot Coil eliminated.)
Gorton & Lidgewood Co., 96 Liberty Street, New York, N. Y.
 Gorton Self-Feeding Boilers. Booklet. $4\frac{1}{4} \times 7\frac{1}{4}$ in. 32 pp. Illustrated. Descriptions, specifications and prices.
Kelsey Heating Company, James St., Syracuse, N. Y.
 Booklet No. 5. 4×9 in. 32 pp. Illustrated. A dealers' booklet showing the Kelsey Warm Air Generator Method of warming and distributing air. Gives dimensions, heating capacities, weights, kind of coal recommended, and shows the mechanical and gravity system of heating homes, churches and schools.
 Monroe Pipeless Booklet. $4\frac{1}{4} \times 8$ in. 20 pp. Illustrated.
 Monroe Tubular Heater. Booklet. $4\frac{1}{4} \times 8$ in. 20 pp. Illustrated. General Booklet giving capacities, dimensions, weights, etc.
 Syracuse Pipeless Booklet. $4\frac{1}{4} \times 8$ in. 12 pp. Illustrated. General Booklet, giving sizes and capacities.
Kewanee Boiler Co., Kewanee, Ill.
 Kewanee on the Job. Catalog. $8\frac{1}{2} \times 11$ in. 80 pp. Illustrated. Showing installations of Kewanee boilers, water heaters, radiators, etc.
 Catalog No. 73. 6×9 in. 35 pp. Illustrated. Describes Kewanee steel power boilers with complete specifications.
Minneapolis Heat Regulator Company, Minneapolis, Minn.
 The Heart of the Heating Plant. Catalog. 6×9 in. 20 pp. Illustrated. Describing the Minneapolis Heat Regulator, its construction, application and operation for the automatic control of temperature where coal, gas, fuel oil or street steam is used.
Page Boiler Company, The Wm. H., 141 West 36th Street, New York, N. Y.
 Page Boilers. Catalog. $4\frac{1}{2} \times 8$ in. 84 pp. Illustrated. Descriptions with specifications of the Volunteer Round and Monarch Square Sectional Boilers; also the Monarch Up-Draft and Down-Draft Smokeless Boiler; with method for apportioning size of boiler and radiation, and other heating data.

Smith Co., H. B., 57 Main Street, Westfield, Mass.
 General Boiler and Radiator Catalog. 4×7 in. 90 pp. Illustrated. Giving ratings, dimensions, capacities and working pressures.
 Engineer's Data Ring Book. 4×7 in. 125 pp. Illustrated.
 Architect's and Contractor's Binders. These binders are made up of $9\frac{1}{2} \times 11$ in. folders of different kinds giving dimensions, price lists, and erecting directions on the different lines of our manufacture.
B. F. Sturtevant Company, Inc., Hyde Park, Boston, Mass.
 Catalog No. 230. $8\frac{1}{2} \times 10\frac{1}{2}$ in. 132 pp. Illustrated. Gives description and data tables of various types of heaters, also of steam traps.
 Bulletin No. 227. $8\frac{1}{2} \times 10 11/16$ in. 28 pp. Blue prints of heating and ventilating layouts in public buildings, factories, etc.
 Catalog No. 1015. Book on Heating and Ventilating, complete with installations and diagrams.
United States Radiator Corporation, Detroit, Mich.
 The Complete Line. Catalog. $4\frac{1}{4} \times 7\frac{1}{4}$ in. 255 pp. Illustrated. Contains important technical information of special interest to architects and heating engineers.
 Capitol Smokeless Type Boilers. Booklet. $8\frac{1}{2} \times 11$ in. 12 pp. Illustrated. Describing a new type of low-pressure heating boiler which burns soft coal without smoke.

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 65

HEATING EQUIPMENT—Continued

Warren Webster & Co., Camden, N. J.
 Webster Vacuum System of Steam Heating. Catalog. 8 x 10½ in. 36 pp. Illustrated. Describing the Webster Vacuum System of Steam Heating, its principles of operation, and advantages of installation.
Webster Feed-Water Heaters. Catalog. 8 x 10½ in. 28 pp. Illustrated. Describing the construction and operation of the Webster Feed-Water Heaters for steam-heating systems, power plants and industrial plants of every type.

HEAT REGULATORS—See Heating Equipment

HOISTS

Gillis & Geoghegan, 544 West Broadway, New York.
 Hoists for Industrial Plants. Booklet. 6 x 8½ in. 8 pp. Illustrated. Labor saving service in the lifting or lowering of lighter loads, through the use of G. & G. Telescopic and Non-telescopic Hoists.
Removing Ashes. Booklet. 6 x 8½ in. 6 pp. Illustrated. Removing ashes from boiler room directly to wagon by electrically operated Telescopic Hoists.

HOLLOW TILE—See Tile, Hollow

INSULATION

Bishipic Mfg. Company, 103 Este Avenue, Cincinnati, Ohio.
 Homes Built on the Wisdom of Ages. Catalog. 6 x 9 in. 48 pp. Illustrated. Describing the use of Bishipic Stucco-Board and Bishipic Sheathing Board.
Johns-Manville, Inc., Madison Ave. & 41st St., New York, N. Y.
 Business Noise, Its Cost and Prevention. Booklet. 6 x 9½ in. 16 pp. Illustrated. Data on correction of acoustics in offices, theaters, churches, etc.
Philip Carey Co., The, Cincinnati, Ohio.
 Carey Asbestos and Magnesia Products. Catalog. 6 x 9 in. 72 pp. Illustrated.
United States Gypsum Company, 205 West Monroe St., Chicago, Ill.
 Bulletin, 8½ x 11 in. Details and specifications for insulating roofs to prevent condensation.

LATH, METAL AND REINFORCING

North Western Expanded Metal Co., 934 Old Colony Building, Chicago, Ill.
 Designing Data. Catalog. 6 x 9 in. 94 pp. Illustrated. Describes most efficient use of Econo Expanded Metal Reinforcing. Formless Concrete Construction. Catalog. 6 x 9 in. 80 pp. Illustrated. Describes use of T-Rib Channelath, a form and reinforcing for concrete.

LIGHTING SYSTEMS

The J. G. Wilson Corporation, 8 West 40th St., New York, N. Y.
 Diffuselite System of Lighting. A number of leaflets and folders covering Diffuselite Paints, Blinds and Fixtures.

LUMBER

California Redwood Assn., 206 Marvin Bldg., San Francisco, Calif.
 California Redwood Homes. Booklet. 6 x 9 in. 16 pp. Illustrated. Describes the use of Redwood Lumber for various places and conditions in the building of the home.
Long Bell Lumber Co., R. A. Long Building, Kansas City, Mo.
 The Post Everlasting. Booklet. 10½ x 7½ in. 32 pp. Illustrated. Information regarding creosoted yellow pine fence posts, barn poles, paving blocks, etc.
Poles That Resist Decay. Booklet. 9½ x 4 in. 16 pp. Illustrated. Poles for telegraph, telephone, high power transmission lines.
Morgan Millwork Organization, Chicago, Ill.
 Building With Assurance. Book. 8½ x 11 in. 408 pp. Illustrated. Valuable to architects for the Standardized Mill Work illustrated and described.
 Price Supplement. Catalog. 4 x 8 in. 96 pp. Illustrated. Prices all illustrations in "Building With Assurance" and is valuable in connection with it or by itself.

METAL LATH—See Lath, Metal and Reinforcing

METALS

American Brass Company, Waterbury, Conn.
 Illustrated pamphlet describes the use and adaptability of extruded architectural shapes to meet the architect's design.
American Sheet & Tin Plate Co., Frick Building, Pittsburgh, Pa.
 Reference Book. Pocket Ed. 2½ x 4½ in. 168 pp. Illustrated. Covers the complete line of Sheet and Tin Mill Products.
Copper—Its Effect Upon Steel for Roofing Tin. Catalog. 8½ x 11 in. 28 pp. Illustrated. Describes the merits of high grade roofing tin plates and the advantages of the copper-steel alloy.
Apollo and Apollo-Keystone Galvanized Sheets. Catalog. 8½ x 11 in. 20 pp. Illustrated.
 Research on the Corrosion Resistance of Copper Steel. Booklet. 8½ x 11 in. 24 pp. Illustrated. Technical information on results of atmospheric corrosion tests of various sheets under actual weather conditions.
Facts Simply and Briefly Told. Booklet. 8½ x 11 in. 16 pp. Illustrated. Non-technical statements relating to Keystone Copper Steel.
Black Sheets and Special Sheets. Catalog. 8½ x 11 in. 28 pp. Illustrated. Describes standard grades of Black and Uncoated Sheets, together with weights, bundling tables, etc.
Bright Tin Plates. Catalog. 8½ x 11 in. 16 pp.
Rome Brass & Copper Company, Rome, N. Y.
 Descriptive Price List. 5 x 7 in. A leather-covered loose-leaf book listing sheets, tubes, rods, rolls, anodes, strips, extruded shapes, angles and channels, tapered tubes and hose pipes; molding, door-rail; commutator bars and segments; electrical copper bar, rivets and burns.

METAL TRIM—See Doors, Windows and Trim, Metal

MORTAR COLORS

Clinton Metallic Paint Co., Clinton, N. Y.
 Clinton Mortar Colors. Booklet. 3½ x 6½ in. 8 pp. Illustrated. Complete description of Clinton Mortar Colors with color samples.

OFFICE SUPPLIES

Dixon Crucible Co., Joseph, Pencil Dept., 224 J. Jersey City, N. J.
 Finding Your Pencil. Booklet. 6½ x 3½ in. 16 pp. Illustrated. The First Five. Booklet. 3½ x 5½ in. 10 pp. Illustrated. A Study in Sepia. Booklet. 7 x 4½ in. 5 pp. Illustrated.

PAINTS, STAINS, VARNISHES AND WOOD FINISHES

Boston Varnish Co., Everett Station, Boston, Mass.
 The Inviting Home. Booklet. 5½ x 9 in. 16 pp. Color Plates. A briefly worded book on painting for the busy architect or decorator.
Cabot, Inc., Samuel, Boston, Mass.
 Cabot's Creosote Stains. Booklet. 4 x 8½ in. 16 pp. Illustrated.
Fox Co., M. Ewing, New York, N. Y.
 Calcimines. Booklet. 3½ x 6½ in. 8 pp. Color cards.
S. C. Johnson & Son, Racine, Wis.
 The Proper Treatment for Floors, Woodwork & Furniture. Booklet. 6½ x 8½ in. 32 pp. Illustrated in color. A treatise on finishing hard and soft wood in stained and enameled effects; also natural wood effects.
 Portfolio of Wood Panels. 5½ x 10½ in. 14 pp. A portfolio containing actual panels of finished woods. Also contains valuable information on finishing and re-finishing floors and woodwork.
National Lead Company, 111 Broadway, New York, N. Y.
 Handy Book on Painting. Book. 5½ x 3½ in. 100 pp. Gives directions and formulas for painting various surfaces of wood, plaster, metal, etc., both interior and exterior.
 Red Lead in Paste Form. Booklet. 6½ x 3½ in. 16 pp. Illustrated. Directions and formulas for painting metals.
 Came Lead. Booklet. 8½ x 6 in. 12 pp. Illustrated. Describes various styles of lead cameas.
 Cinch Anchoring Specialties. Booklet. 6 x 3½ in. 20 pp. Illustrated. Describes complete line of expansion bolts.

O'Brien Varnish Co., 1121 Washington Avenue, South Bend, Ind.
 That Magic Thing Called Color. Booklet. 5½ x 8½ in. 24 pp. Illustrated. Short treatise on the use of color in the home, special reference to walls and ceilings.
 Architects' Specification Manual. 8½ x 11 in. 50 pp. Complete specifications for all paint products.
Ruberoid Co., The (formerly the Standard Paint Co.), 95 Madison Avenue, New York, N. Y.
 Preservative Coatings. Booklet. 6 x 9 in. 15 pp. Illustrated. Presents in a concise manner the properties and uses of the Standard Paint Company's various paint preparations.
Smith & Co., Edward, P. O. Box 76, City Hall Station, New York, N. Y.
 Architect's Hand Book. 4½ x 7½ in. 24 pp. Specifications and suggestions for painting, varnishing, enameling, etc.
Sonneborn Sons, Inc., L., Dept. 4, 264 Pearl Street, New York.
 Paint Specifications. Booklet. 8½ x 10½ in. 4 pp.
Wadsworth-Howland Co., Inc., Boston, Mass.
 Paints and Varnishes. Catalog. 5½ x 8½ in. 140 pp. Illustrated. Covers the complete line.

PARTITIONS

Improved Office Partition Company, 25 Grant St., Elmhurst, L. I.
 Telesco Partition. Catalog. 8½ x 11 in. 14 pp. Illustrated. Shows typical offices laid out with Telesco partitions, cuts of finished partition units in various woods. Gives specifications and cuts of buildings using Telesco.
 Detailed Instructions for erecting Telesco Partitions. Booklet. 24 pp. 8½ x 11 in. Illustrated. Complete instructions, with cuts and drawings, showing how easily Telesco Partition can be erected.
The J. G. Wilson Corporation, 8 West 40th St., New York, N. Y.
 Folding Partitions. Booklet. 8½ x 11½ in. 16 pp. Illustrated. Covers the field of folding partitions for churches, schools, hotels, clubs and public institutions.
 Rolling Partitions, Hygienic and Disappearing Door Wardrobes. Booklet. 6 x 9 in. 32 pp. Illustrated. Describes rolling partitions, particularly in churches and schools, and wardrobes as installed in schools and public institutions.

PIPE

American Brass Company, Waterbury, Conn.
 Illustrated pamphlet giving tables of weights and price-lists devoted to Brass and Copper Pipe in iron pipe and plumbers' sizes.
Clow & Sons, James B., 534 S. Franklin Street, Chicago, Ill.
 Catalog "A." 4 x 6½ in. 706 pp. Illustrated. Shows a full line of steam, gas and water works supplies.
National Tube Co., Frick Building, Pittsburgh, Pa.
 National Bulletin No. 11, History, Characteristics and Advantages of National Pipe. Catalog. 8½ x 11 in. 48 pp. Illustrated.

PLUMBING EQUIPMENT

American Brass Company, Waterbury, Conn.
 Benedict Nickel. Illustrated pamphlet descriptive of Benedict Nickel White Metal for high-grade plumbing fixtures.
Brunswick-Balke-Collender Co., 623 S. Wabash Avenue, Chicago, Ill.
 Whale-bone-ite Seat. Booklet. 3½ x 6½ in. 4 pp. Illustrated.
 Whale-bone-ite Seat. Booklet. 3½ x 6½ in. 8 pp. Illustrated.

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS — *Continued from page 66*

PLUMBING EQUIPMENT — Continued

Clow & Sons, James B., 534 S. Franklin Street, Chicago, Ill.
Catalog "M." 9½ x 12 in. 184 pp. Illustrated. Shows complete line of plumbing fixtures for Schools, Railroads and Industrial Plants.

Crane Company, 836 S. Michigan Avenue, Chicago, Ill.
Crane Products in World Wide Use. Catalog. 5 x 9½ in. 24 pp. Illustrated.

Plumbing Suggestions for Home Builders. Catalog. 3 x 6 in. 80 pp. Illustrated.

Plumbing Suggestions for Industrial Plants. Catalog. 4 x 6½ in. 43 pp. Illustrated.

Kohler Co., Kohler, Wis.
Kohler of Kohler. 5½ x 8 in. 48 pp. Illustrated catalog. Shows complete line of plumbing fixtures.

Maddock's Sons Co., Thomas, Trenton, N. J.
Highest Grade Standardized Plumbing Fixtures for Every Need. Catalog. 5 x 7½ in. 94 pp. Illustrated. Covers the complete line.

Bathroom Individuality. Booklet. 6 x 9 in. 28 pp. Illustrated. Showing view of complete bathrooms with complete descriptions of floor plans.

Specifications for plumbing fixtures. Booklet. 9 x 12 in. 8 pp. Tables of specifications for industrial buildings, schools, apartments, hotels, etc.

Speakman Company, Wilmington, Del.
Speakman Showers and Fixtures. Catalog. 4½ x 7½ in. 250 pp. Illustrated. Catalog of Modern Showers and Brass Plumbing Fixtures, with drawings showing layouts, measurements, etc.

Toned Up In Ten Minutes. Booklet. 7½ x 10½ in. 16 pp. Illustrated. Modern Showers and Washups for Industrial Plants, showing the sanitary method of washing in running water.

Wolff Manufacturing Company, 255 No. Hoyne Ave., Chicago, Ill.
Plumbing Suggestions. Catalog. 3½ x 6 in. 50 pp. Illustrated. Illustrating, describing and pricing Wolff Quality Plumbing Fixtures for residential installation.

PUMPS

Goulds Mfg. Co., The, Seneca Falls, N. Y.
Set of Twenty Bulletins. 7½ x 10½ in. 12 to 32 pp. each. Illustrated. Covers complete line of power and centrifugal pumps for all services.

Catalog "K." 6 x 9 in. 216 pp. Illustrated. Covers complete line of smaller size pumps.

ROLLING DOORS AND SHUTTERS

The J. G. Wilson Corporation, 8 West 40th St., New York, N. Y.
Rolling Doors and Shutters—Steel and Wood. Catalog. 8½ x 11½ in. 80 pp. Illustrated. For engineers and architects. Covers all classes of heavy doors, for every purpose, and in great variety of materials, bronze, steel and wood. Many sheets of detail drawings.

ROOFING

American Brass Company, Waterbury, Conn.
Copper Products for Roofing Purposes. Illustrated price-list devoted to copper products, including sheets and rolls, for fabricating into leaders, gutters, flashings, shingles, etc.

Creo-Dipt Company, 1025 Oliver St., North Tonawanda, N. Y.
Architectural Service Sheets. 8½ x 11 in. Illustrated. Working drawings of construction, with standard specifications for design and construction of same.

Philip Carey Co., The, Cincinnati, Ohio.
Architectural Specifications for Carey Building Material. 8½ x 11 in. 48 pp. Illustrated.

Illinois Zinc Company, 280 Broadway, New York, N. Y.
Pure Rolled Zinc. (Corrugated and Plain Sheets.) Booklet. 3½ x 6½ in. 8 pp. Illustrated. Facts regarding adaptability of zinc for roofing. Specifications of corrugated zinc sheets. Weights per square. Comparative gauge lists.

The Roof That's Always New. Booklet. 3½ x 6 in. 12 pp. Illustrated. Story of Illinois Zinc Shingles, their everlasting and artistic qualities. Information regarding a complete zinc roof, shingles, starting piece, valley, ridge and hip piece.

Johns-Manville, Inc., Madison Avenue and 41st Street, New York.
Johns-Manville Colorblende Asbestos Shingles. Booklet. 3½ x 6 in. 32 pp. Illustrated. Prices, construction data and specifications.

Johns-Manville Roofing and Building Materials. Catalog. 3½ x 6 in. 24 pp. Illustrated. Describes building materials such as asbestos wood, sound deadening and insulating felts, waterproofing, etc.

Ruberoid Co., The (formerly the Standard Paint Co.), 95 Madison Avenue, New York, N. Y.
Instructions for Laying Built-up Roofs. Booklet. 8½ x 11 in. Illustrated.

Roofing Facts Worth Knowing. Booklet. 6 x 9 in. 16 pp. Illustrated.

N. & G. Taylor Company, 300 Chestnut Street, Philadelphia, Pa.
Selling Arguments for Tin Roofing. Booklet. 6½ x 9½ in. 80 pp. Illustrated. Describes the various advantages of the use of high grade roofing tin, gives standard specifications, general instructions for the use of roofing tin, illustrates in detail methods of application.

SEWAGE DISPOSAL

Kewanee Private Utilities, 442 Franklin St., Kewanee, Ill.
Specification Sheets. 7½ x 10½ in. 46 pp. Illustrated. Detailed drawings and specifications covering water supply and sewage disposal systems.

SHEATHING

Bishoprie Mfg. Company, 103 Este Ave., Cincinnati, Ohio.
Homes Built on the Wisdom of Ages. Catalog. 6 x 9 in. 48 pp. Illustrated. Describing the use of Bishoprie Stucco-Board and Bishoprie Sheathing Board.

STONE, BUILDING

Harrison Granite Company, 200 Fifth Avenue, New York, N. Y.
Harrison Granite Company, Clientele. 3¾ x 8¾ in. 24 pp. Illustrated. A partial list of clients with illustrations of examples of monuments and mausoleums.

Indiana Limestone Quarrymen's Association, Box 766, Bedford, Indiana.
Volume 3. Series A-3. Standard Specifications for Cut Indiana Limestone work. 8½ x 11 in. 56 pp. Containing specifications and supplementary data relating to the best methods of specifying and using this stone for all building purposes.

Vol. 1. Series B. Indiana Limestone Library. 6 x 9 in. 36 pp. Illustrated. Giving general information regarding Indiana Limestone, its physical characteristics, etc.

Vol. 27. Series B. Designs for Houses of Indiana Limestone. 8½ x 11 in. 32 pp. Illustrated. Being the best designs submitted in competition for a detached residence faced with Indiana Limestone conducted by *The Architectural Review*.

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Kawneer Co., The, Niles, Mich.
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Bishoprie Manufacturing Co., 103 Este Avenue, Cincinnati, Ohio.
Homes Built on the Wisdom of Ages. Catalog. 6 x 9 in. 48 pp. Illustrated. Describing the use of Bishoprie stucco board and Bishoprie sheathing board.

STUCCO, MAGNESITE

American Materials Company, 101 Park Avenue, New York; Weed Street and Sheffield Avenue, Chicago, Ill.
Elastica, the Stucco of Permanent Beauty. Catalog. 8½ x 11 in. 32 pp. Illustrated. Treatise on composition and application of Elastica Stucco.

Muller, Franklyn R. Co., Waukegan, Ill.
Elastica Magnesite Stucco. Booklet. 8½ x 11 in.

United States Materials Co., Weed Street and Sheffield Avenue, Chicago, Ill. See American Materials Co.

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Atlantic Terra Cotta Co., 1170 Broadway, New York, N. Y.
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Northwestern Terra Cotta Co., The, 2525 Clybourn Ave., Chicago, Ill.
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THERMOSTATS—See Heating Equipment

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Associated Tile Manufacturers, The, Beaver Falls, Pa.
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Swimming Pools. Booklet. 8½ x 11 in. 32 pp. Illustrated. A handbook on swimming pools and their construction.

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 67

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Norton Company, Worcester, Mass.

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Hollow Building Tile Association, Dept. 1812, Conway Bldg., Chicago, Ill.

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National Fire Proofing Co., 250 Federal St., Pittsburgh, Pa.

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Carey Co., The Philip, Cincinnati, Ohio.

Carey Board for Better Building. Catalog. 6 x 9 in. 32 pp. Illustrated.

United States Gypsum Company, 205 West Monroe St., Chicago, Ill.

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Impervite. Circular. 8½ x 11 in. 4 pp. Illustrated. An integral waterproofing compound for concrete, stucco, cement, mortar, etc.

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Smith & Ege Mfg. Co., The, Bridgeport, Conn.

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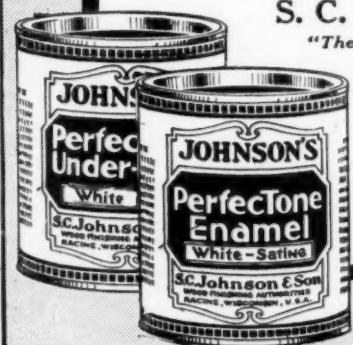
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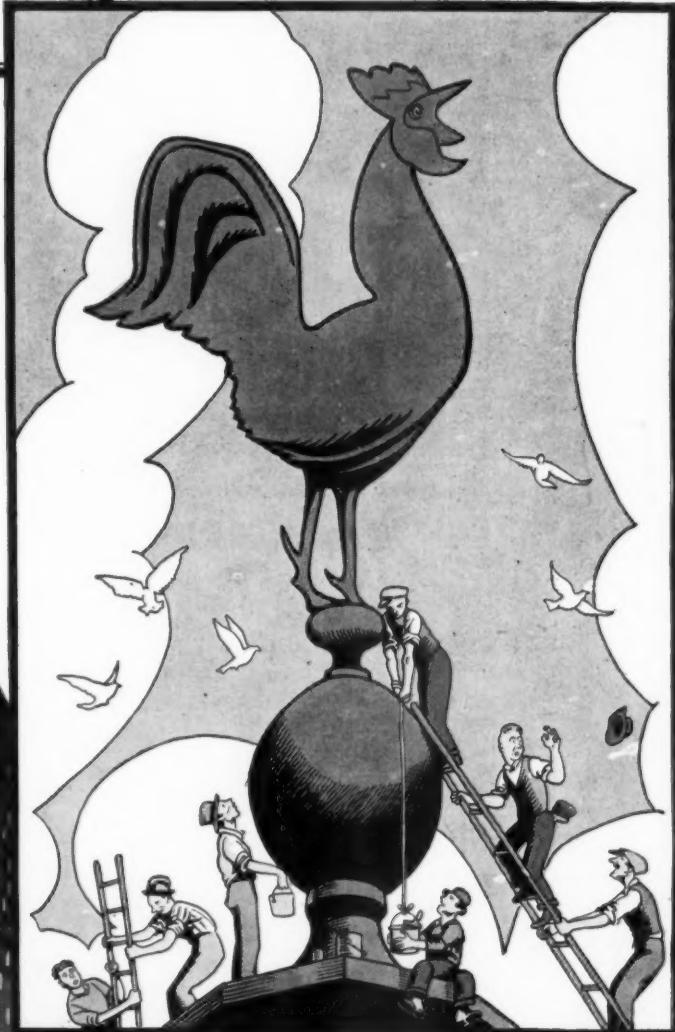
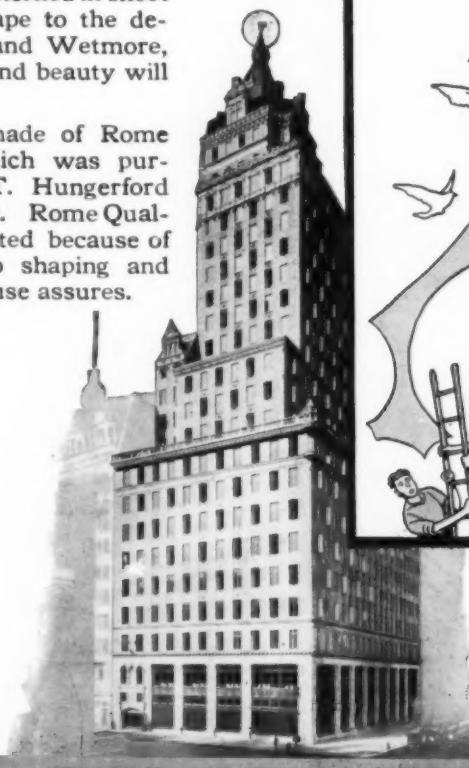


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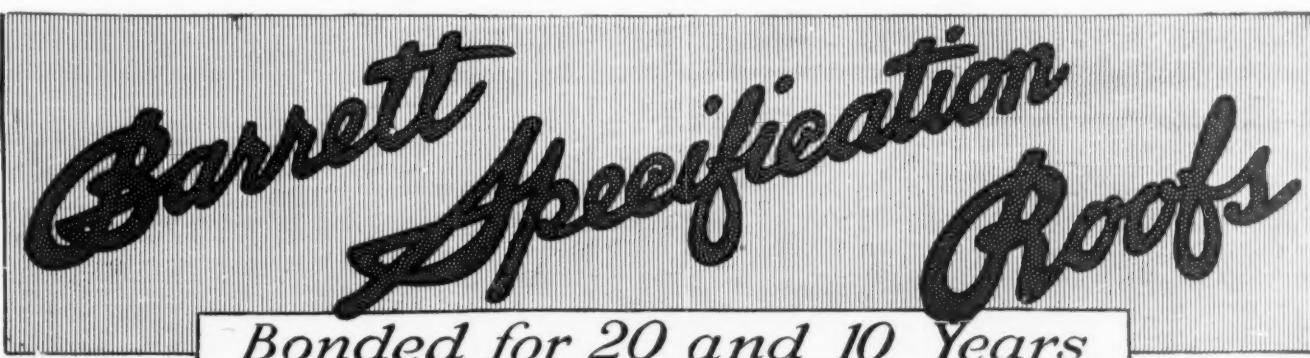
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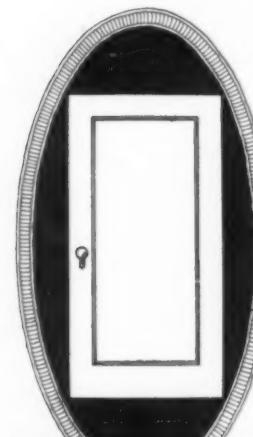
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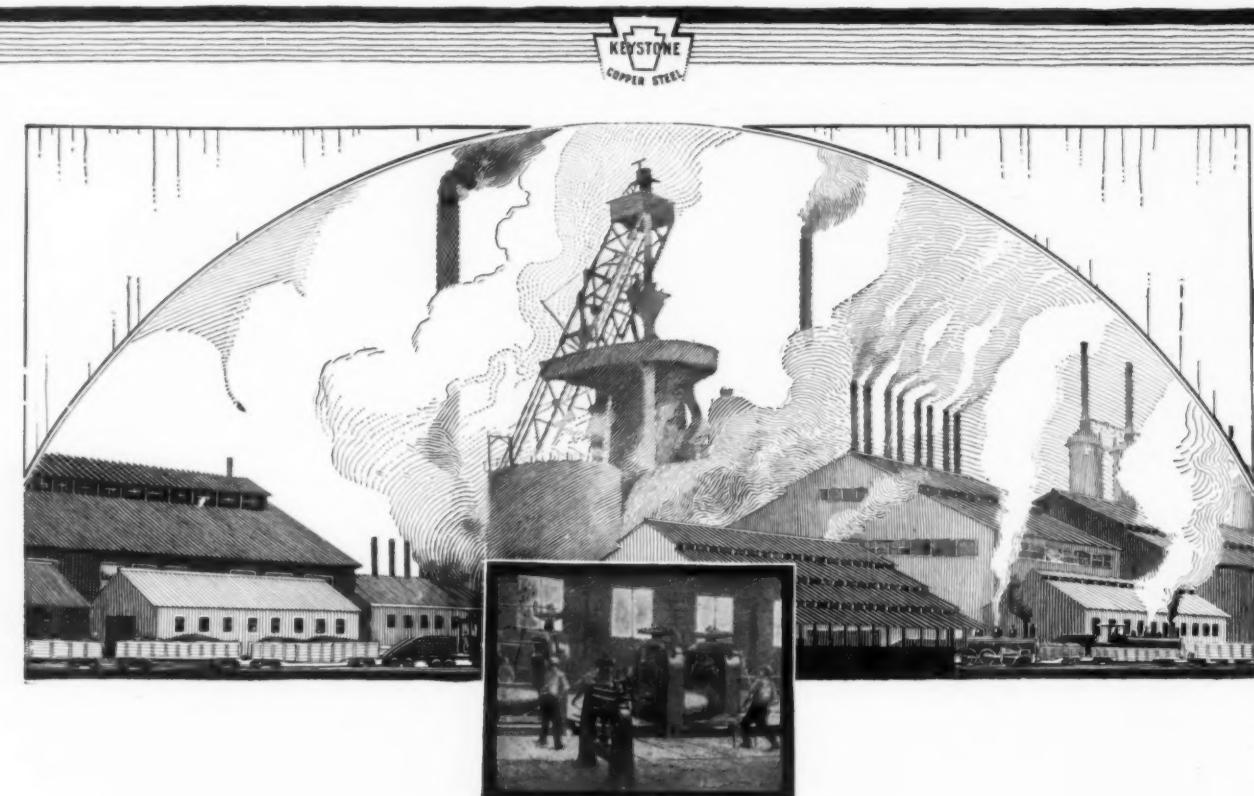
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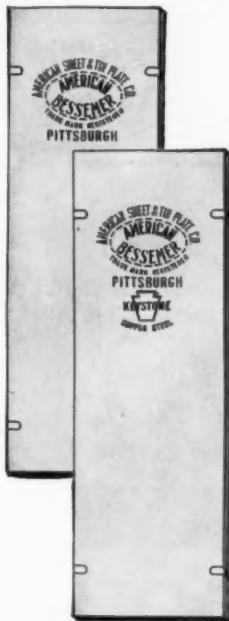
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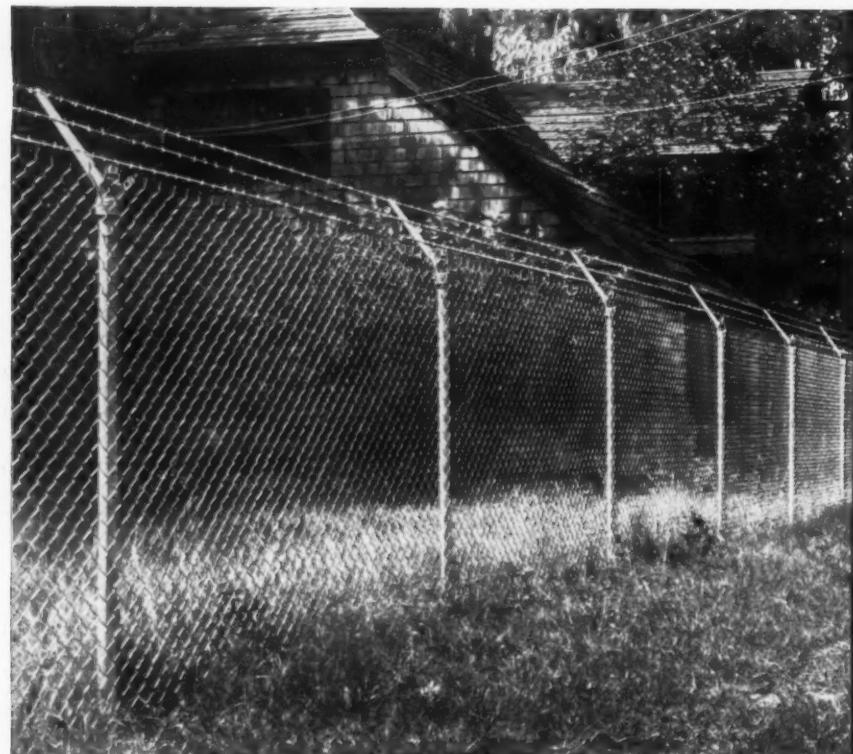
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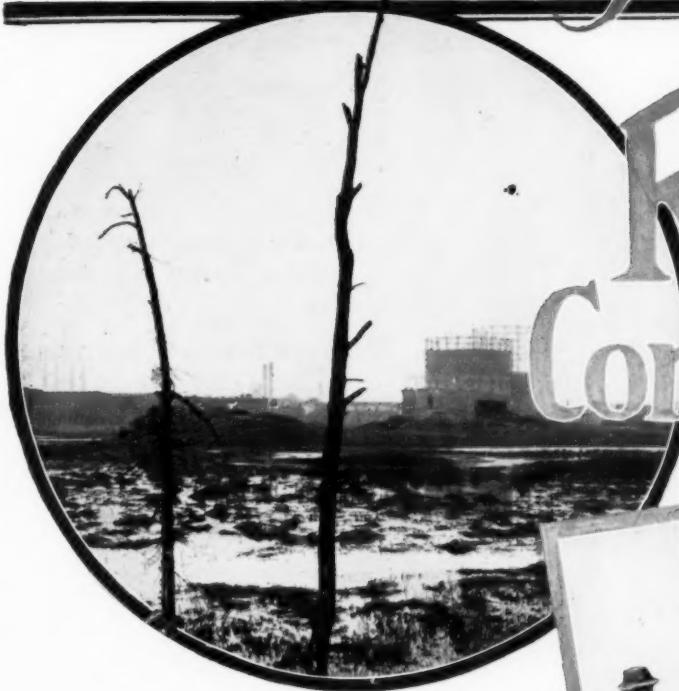
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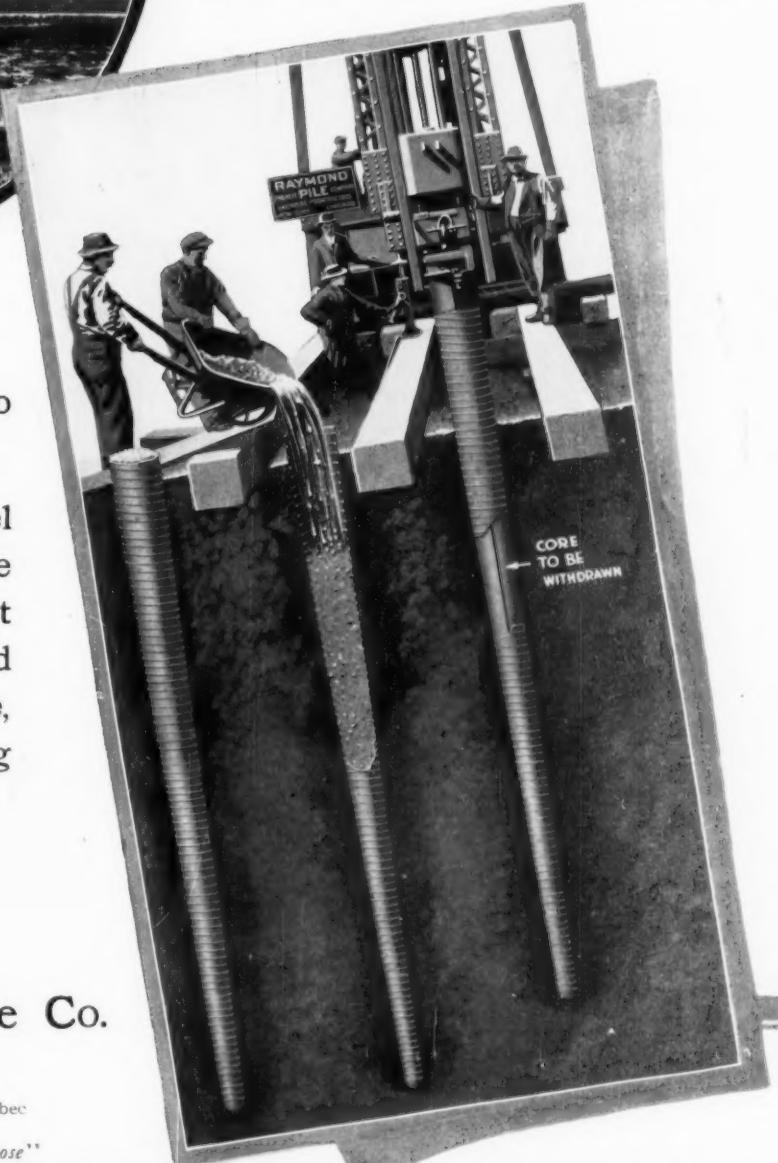
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No. 205
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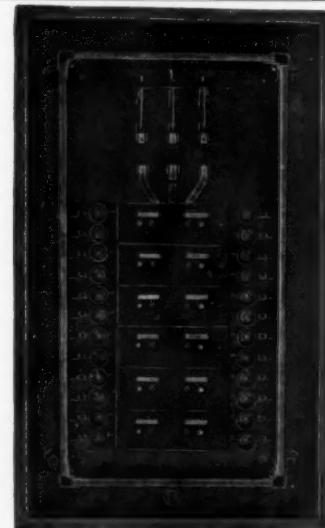
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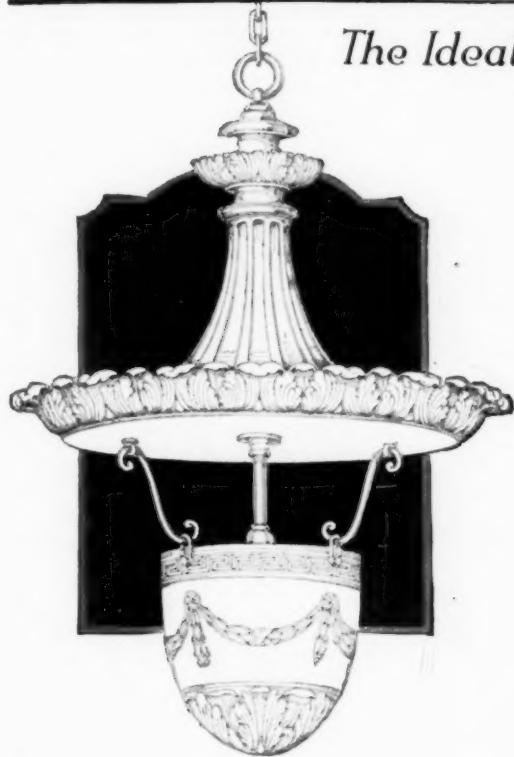
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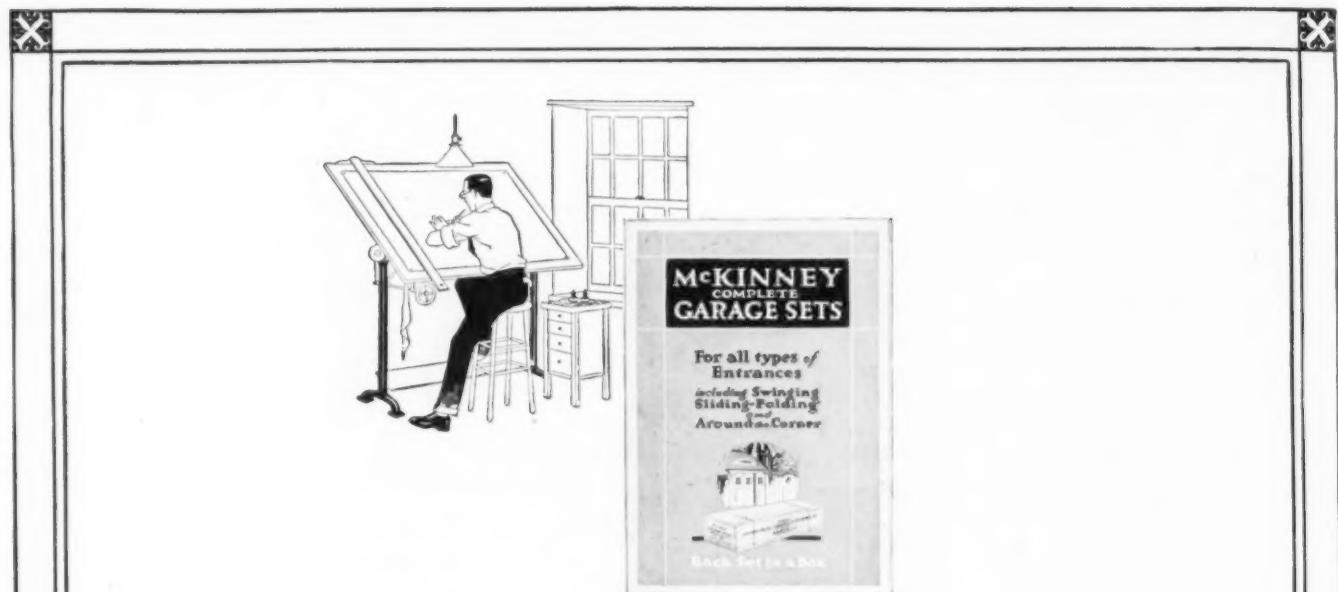
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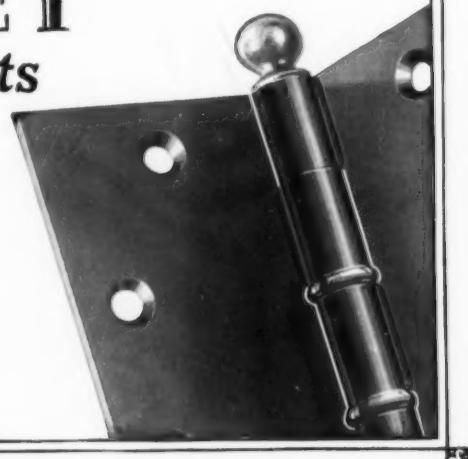
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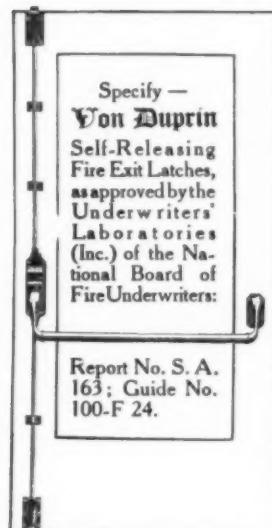
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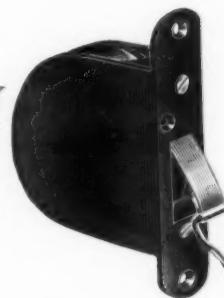
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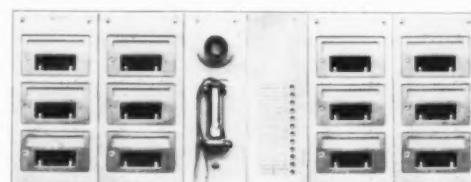


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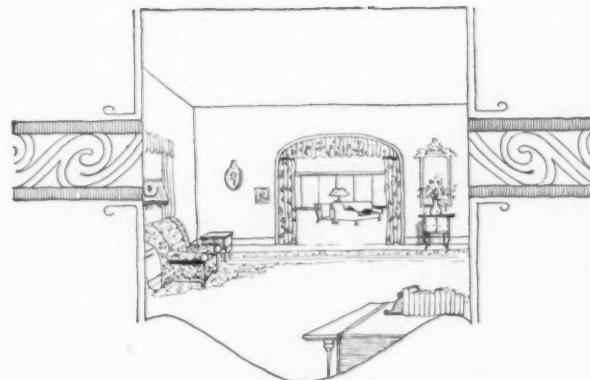
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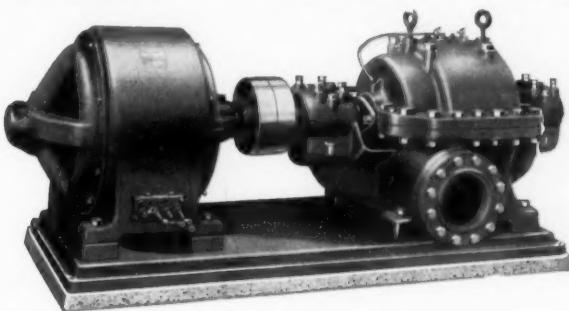
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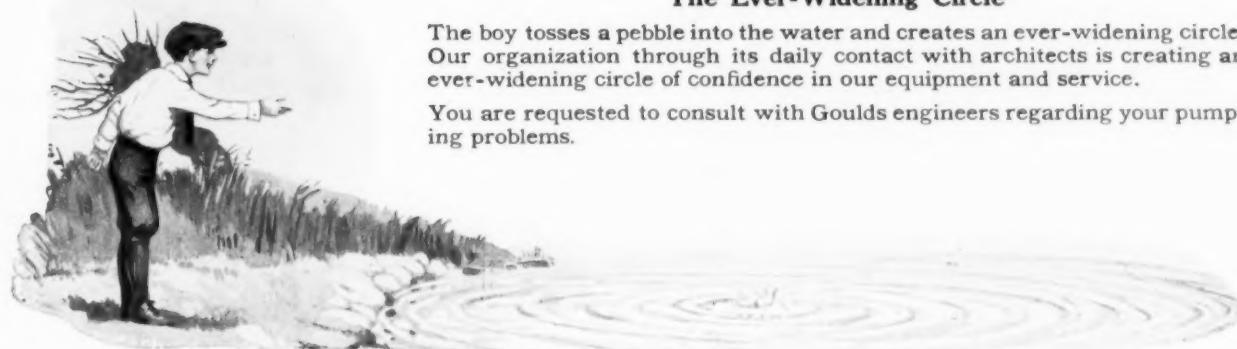
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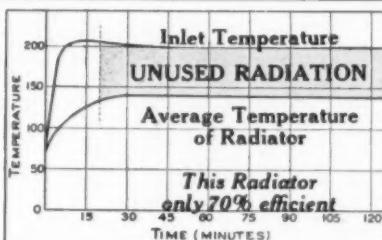
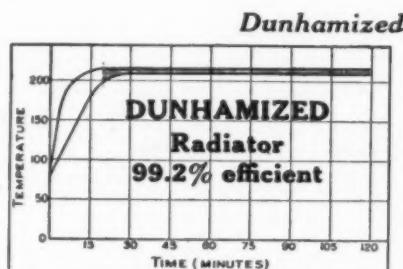
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Unused Radiation is Costly

Keep it down with
Dunham Traps

IN the above charts, the area of "Unused Radiation" has been plotted from laboratory data. We are constantly making such tests. They tell us accurately how the Dunham Radiator Trap compares with other traps.

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Nothing fancy about "GLOBE" Ventilators

—No thing-a-majigs or do-dads to fuss with—nothing wiggles or turns or wobbles or twists or creaks or grinds or groans.

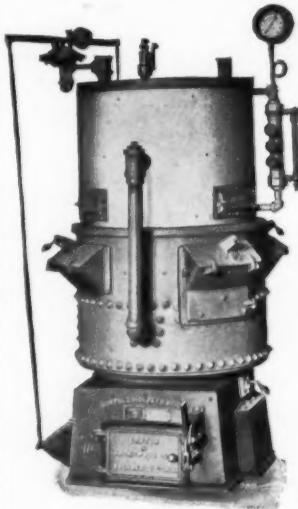
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The Gorton Self-Feeding Boilers are built on the lines of Power Boilers, using the same material, thus securing the greatest Strength, Durability, and highest Efficiency.

The Gorton Self-Feeding Boiler gives a steady heat with attention only morning and night; its construction insures complete combustion of the gases and prevents the waste of coal.

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D. Stuart Douglas
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Kelsey Health Heat for Housing Propositions

THESE illustrations show several types of houses in the Hartford, Conn., Housing Proposition. There are 201 of these houses, in every one of which is installed a No. 16 or No. 18 Kelsey Warm Air Generator.

The Kelsey system was chosen on the basis of efficiency and economy, because it can be proved that the Kelsey Warm Air Generator furnishes "more heat to the ton" than any other heating system. This fact is due to its extra heavy construction and the remarkable effectiveness of the unique zigzag tubes which form its fire and combustion chambers.

For durability, for economy of coal consumption and for adaptability to various types of buildings, the Kelsey Warm Air Generator is in a class by itself and is eminently suited for all kinds of housing propositions.

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Have a STEADY Water Line

Kewanee Boilers are built with plenty of steam space and so, the water stays in the boiler where it belongs and doesn't get into the mains and pipes and radiators.

That means *dryer steam*, and that's what is wanted.

KEWANEE BOILER COMPANY
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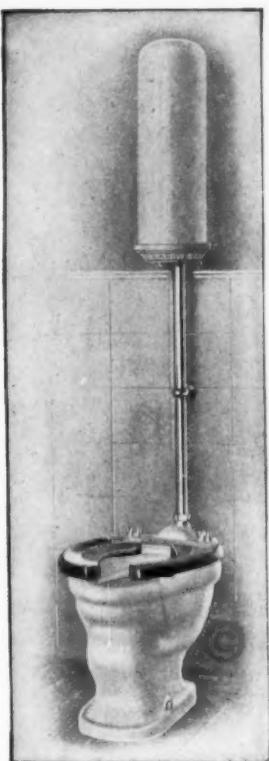
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**Clow
Madden Automatic
Closet**

This type of closet, the extraordinary maintenance economy of which makes it very desirable for industrial plants. The valve consists of only three movable parts—the seat and the stems. It is extremely durable and readily accessible for replacement of the rubber washers—the only part that ever wears out.

Good porcelain, well-plated metal, durable woodwork—those things are *important*. But the valve mechanism of the closet is *vital*. The health of the occupants of the building literally depends upon it.

Clow experience, Clow thoroughness and Clow ideals are represented in valves for various purposes. Made without regard for considerations of price, they are offered and sold only to those who want the *best*.

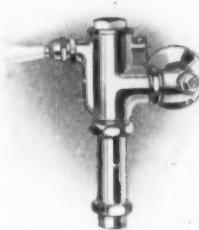
In the three distinct valve constructions illustrated the acme of perfection in closet operation is attained.

The selection of either type, when embodied in a complete water closet combination, to meet building requirements, preference of operation or a special service assures satisfaction, durability, and economy of operation.

The operating mechanism of a water closet combination IS VITAL.

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Clow Water Controlled Flush Valve

This type of valve, for direct connection to mains, on account of its simplicity of construction and operation makes it without a rival in its field.



**The Clow-Shoppe
Flush Valve**

This type of valve in a low down tank eliminates all troubles commonly prevailing in this type of construction.

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AUTOMATIC GAS WATER HEATER

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Humphrey quality insures permanent, inexpensive, plentiful hot water service—time saving, labor saving, enduring. Provide for it in every home you plan.

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Kalamazoo

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221



**Perfect Heating Comfort
at 20 to 30% Coal Saving**

A DSCO Heating gets the utmost out of the coal burned because no steam is wasted. The Adisco Graduated Valve at top of each radiator controls use of steam with great precision. Any desired amount of the radiator's surface can be used. This perfect control saves 20 to 30% of all fuel cost.

The condensate returns to boiler at so low a temperature that return mains need not be covered. No air valves. No radiator or return traps. No vacuum pump. No noise. No odors. Just perfect heating. Change hot water systems to better controlled, more economical Adisco Heating. (Bulletin No. 147-AF tells how.) Ask about Adisco Heating for individual buildings, Bulletin No. 150-AF; for Adisco Community Heating of a group of buildings from Central Station Steam Plant, Bulletin No. 20-AF.

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Adisco Graduated Radiator Valve

Note steam at top of radiator, air below

1
Adisco
Damper
Regulator

ADSCO
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SYSTEMS
OF STEAM HEATING

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& CO.**
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IN over 17,000 public, semi-public and private buildings the Webster Steam Heating Systems are giving conclusive proof that they are built to give permanent satisfaction. Thirty branch offices and service stations help to insure this result by their active and practical co-operation with architects, contractors and owners in designing and installing each system and then checking its operation.

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Steam Heating

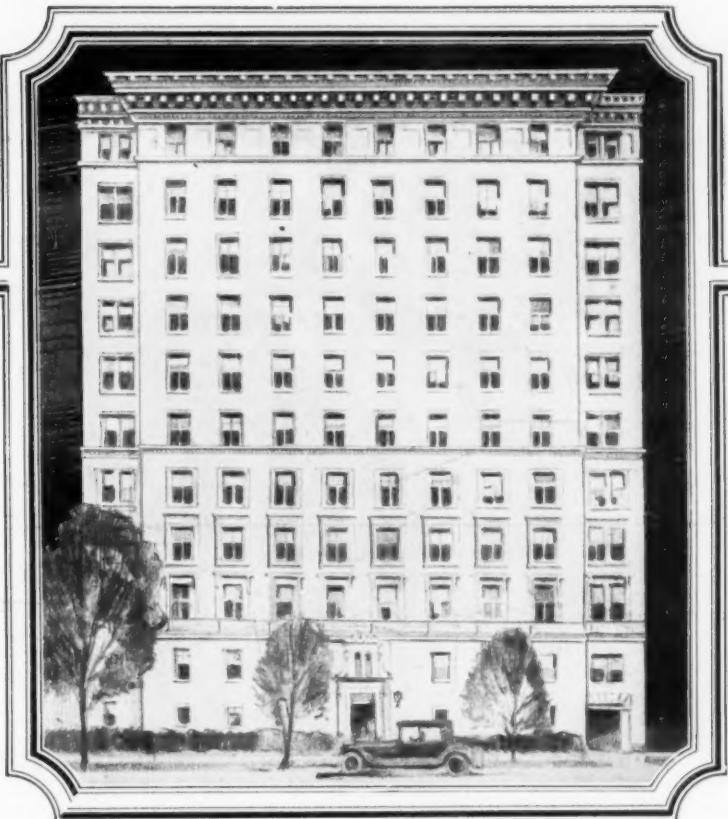
124

*Shoreland Apartments
Lake Shore Drive
Chicago, Ill.*

*Heated by three
No. S-4012
Super-Smokeless Boilers*

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Architects*

*T. J. Douglas & Co.
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Soft Coal Heating of Fine Buildings with **Imperial** **Super-Smokeless Boilers**

Where anti-smoke ordinances are in effect and where beauty of buildings is concerned — there Imperial Super-Smokeless Boilers are especially desirable.

Apartment houses and hotels keep their rooms comfortable in the coldest weather; and public buildings and manufacturing plants maintain their proper temperatures with these super boilers.

They consume little fuel and burn the poorer grades of bituminous coal without smoke or soot. All carbon and gases from the coal are thoroughly burned before leaving the boiler — it's the Super-Smokeless idea that does it.

Right at the heart of the fire a fresh supply of air (oxygen) is admitted. The result is an intensely hot, blue-white flame that swirls forward and back through the boiler, efficiently super-heating every bit of surface and consuming all gases. It is the Bunsen Burner principle correctly applied to heating systems.

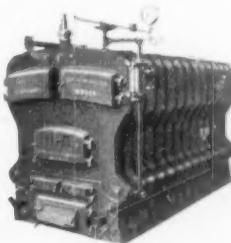
Our catalog and list of installations will interest you. Write for it.

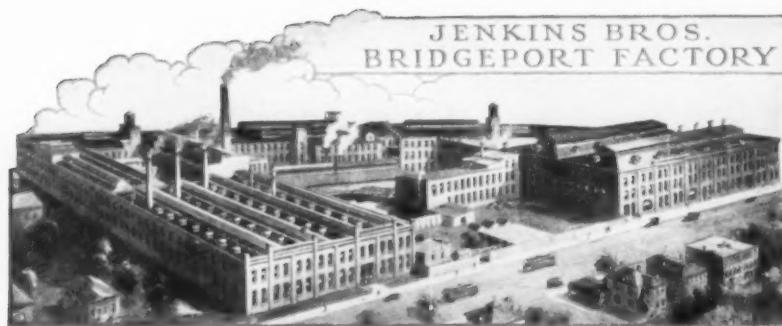


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A high standard perpetually maintained

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Jenkins design provides a heavier, stronger valve. The "analyses proved" metal is uniformly cast, and castings are accurately machined to assure unity of parts. (Parts are interchangeable, and proper replacements can be supplied readily for any Jenkins Valve.) Each valve must "prove" itself in rigid tests and leaves the factory fully guaranteed — a valve that is safe and dependable in severe as well as average service.

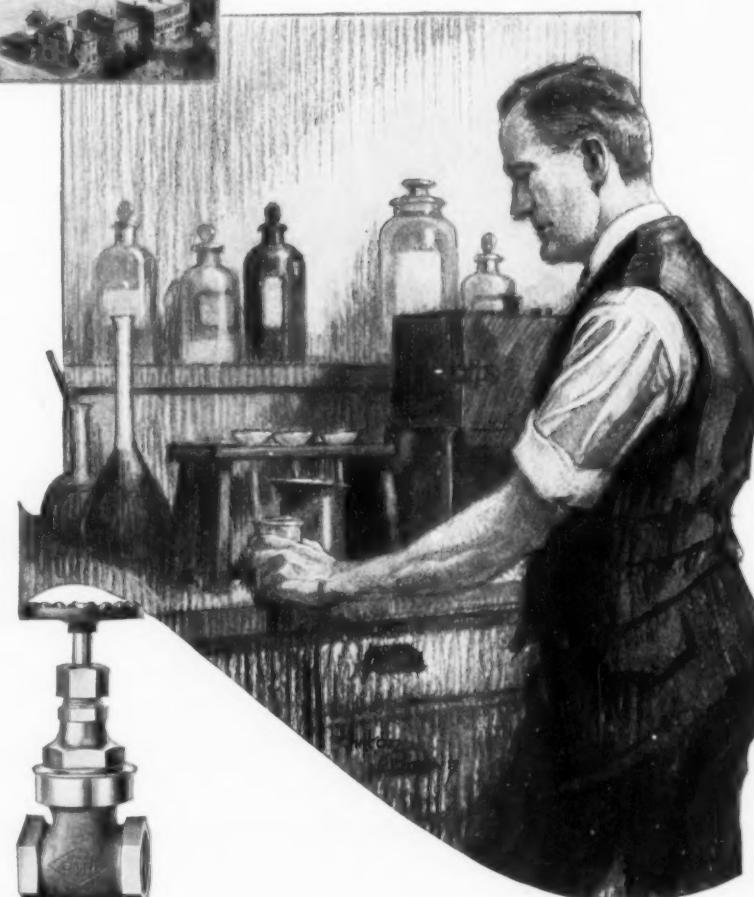
Jenkins Valves are made in brass, iron, and steel for all requirements. The Jenkins "Diamond Mark" and signature on each valve identify the genuine — at supply houses everywhere.

Send for data on the valves in which you are interested.

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FACTORIES: Bridgeport, Conn.;
Elizabeth, N. J.; Montreal, Canada

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Jenkins Valves

SINCE 1864

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MODERN METHODS

From the time the high-grade ore is charged into the blast furnace until the resultant metal emerges from the mill in the form of finished pipe, each successive operation in the manufacture of "NATIONAL" Pipe is supervised by a corps of technical and mechanical experts.

High-grade raw material, modern mechanical methods, and an intensive system of inspecting and testing are some of the factors which have made "NATIONAL" the

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Galvanized Pipe

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An Investigation
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What is
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The
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How long should piping last?

LIGHT is thrown on this vital question by various Byers Bulletins on pipe corrosion. The Life, of course, depends on the nature of the service—the corrosive conditions. Also on the kind of pipe you install—Byers or cheaper pipe.

What is Wrought Iron? How much longer does it last than Steel? How much should it cost to *install* Pipe? Is Galvanized pipe worth the extra cost? These and many other questions are dealt with in Byers Bulletins.

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BYERS PIPE

GENUINE WROUGHT IRON
FULL WEIGHT GUARANTEED

Look for the Name and Year rolled in every length



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IN THE
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UNDER THE
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USE SOIL PIPE WHERE SOIL PIPE SHOULD BE USED

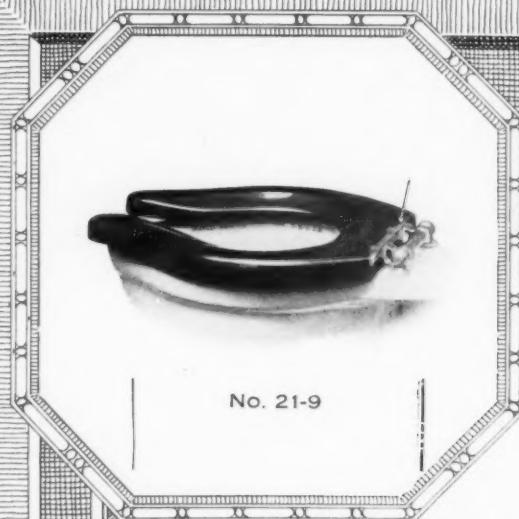
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CLOSET SEATS



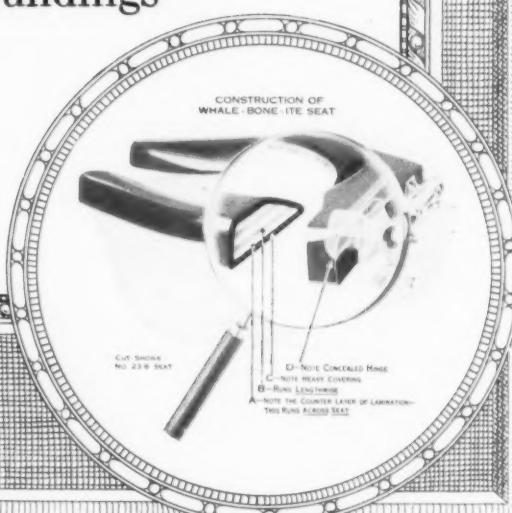
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WHETHER the specifications call for a moderate fixture of conservative design or the more ornate elegance of the costly structure, there can be unfailing confidence and satisfaction in

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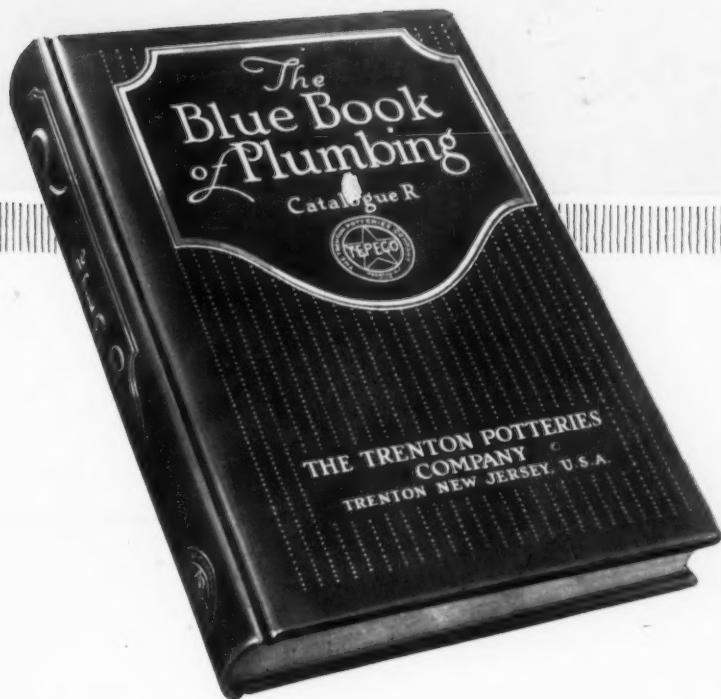
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— 1921

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Mixometer that gives the desired shower temperature instantly. The Mixometer has been tested for more than ten years in school use.

Lock Shield Controlling Stops that allow the water to be cut to the economy point (6 gallons per minute).

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We will be glad to give architects any needed information we may have about showers. Also to send booklets and our recent catalog, H.

Speakman Company
Wilmington Delaware

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'Wash and Bathe in Running Water'

"I Wish I had Known about the Kernerator before My Home was Built"

THIS is the attitude reflected in the many letters received from disappointed home owners who have learned about this modern system of waste disposal after their residences have been completed — too late for a Kernerator to be installed.

The Kernerator is a brick incinerator built into the base of the chimney in the basement when the building is erected. On the first floor in the flue is a hopper door into which is thrown all household refuse — wilted flowers, broken crockery, tin cans, garbage. This material falls down into the incinerator and at intervals it is lighted and burns itself up. Costs nothing to operate since no commercial fuel is required.



Drop All Waste Here—Then Forget It

For additional details and specifications see page 1837 Sweet's 1920 Catalog.
Kerner Incinerator Co.
1015 Chestnut St., Milwaukee, Wis.

KERNERATOR

Built-in-the-Chimney



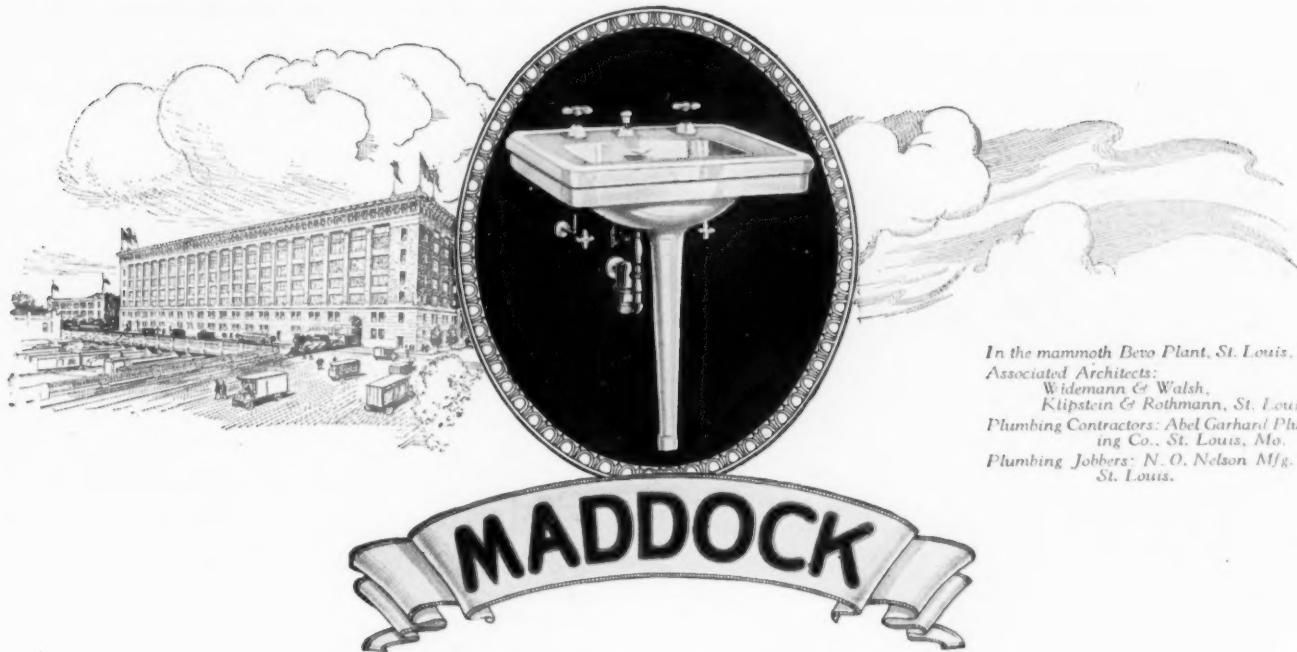
Flushes Instantly with Big Saving in Water

WATROUS
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FIXTURES
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Note in the diagram above the direct line of flow — with no crevices, ledges or passages to foul. Protected always by positive water seal. The Watrous Closet saves two to three gallons of water on each flushing. Write for our prices and detailed description.

The Imperial Brass Mfg. Co.
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Send for catalog also describing Watrous Flushing Valves, Urinals, Self-Closing Cocks, Liquid Soap Fixtures, Drinking Fountains, etc.



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Plumbing fixtures are bought but once or twice in a lifetime. Therefore, such equipment should be selected on the basis of SERVICE—service in labor saved, service in preventing disease and service in safeguarding health.

Maddock fixtures are made entirely of glistening, snow white, almost unbreakable vitreous chinawhich gives yearsand yearsof service without repairs and without showing age. They are easy to keep clean, are sanitary and always can be depended upon to protect health.

If you do not have a complete file of Maddock literature, write for our architect's catalog which describes fully the Maddock line of fixtures for the home, public buildings, hospitals, etc.

Thomas Maddock's Sons Company, Trenton, N. J.
 OLDEST • SANITARY • POTTERS • IN • AMERICA ESTABLISHED 1859
Manufacturers of sanitary earthenware plumbing fixtures for bath, kitchen and laundry needs in the home; also sanitary ware for medical, industrial, commercial and public building installations
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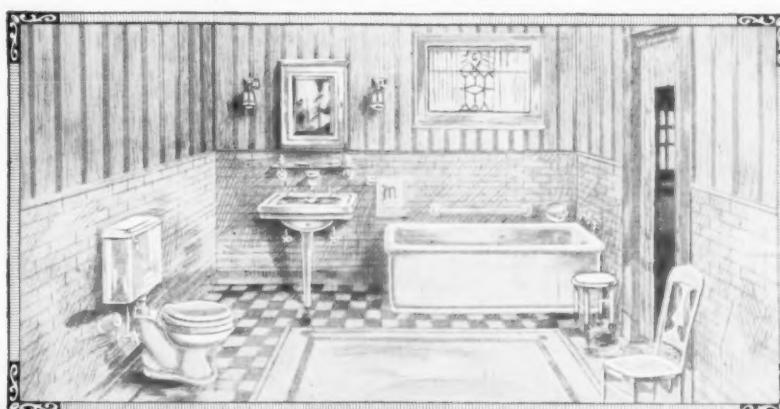
See our section in the
Fourteenth Annual Edition
of Sweet's Catalog,
pages 1037 to 1044.



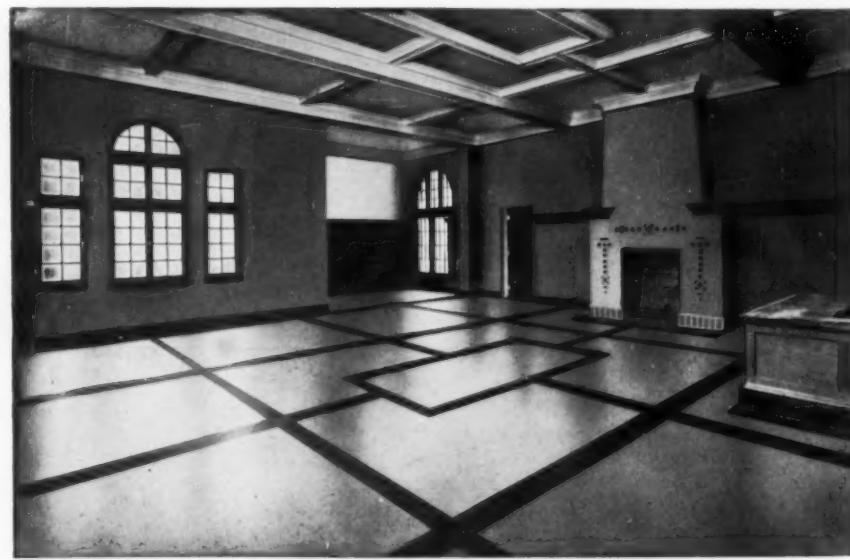
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This lavatory may also be furnished with pedestal instead of center leg support, where so desired.



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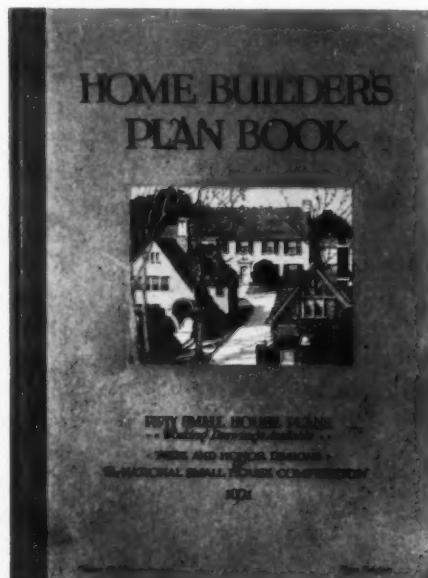
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This is a selection from nearly 1,200 designs that were submitted to the Jury and the standard of architecture is exceptionally high. To any architect interested in small house design this book will have a definite and practical appeal.

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Even the smaller cities are learning that a fine hotel is a civic asset and worthy of the best in architecture and equipment. Witness, for instance, the Fort Steuben Hotel, Steubenville, Ohio. Here, as in so many other modern hotels, large and small, Kohler Enameled Plumbing Ware—snow-white, glistening, easily cleaned—was selected for its famous qualities of beauty, durability and utility. This public favor extends also into homes, clubs, apartments and institutions throughout the land.

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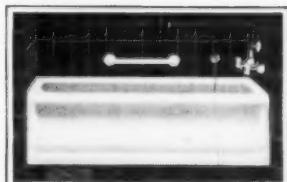
Our hand book, "KOHLER of KOHLER," illustrating and describing Kohler Enameled Plumbing Ware, contains much information of interest to architects. We shall be very glad to send a copy on request.

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Kohler "Viceroy" Built-in Bath
Recess Pattern

Manufacturers' Catalogs and Business Announcements

CATALOG REVIEW

TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO.

"Truscon Mechanical Operators" (8½ x 11 ins.).
48 pp.

The improvement which is so marked in manufacturing buildings, in schools of certain types and in structures of many kinds covering extensive areas is closely bound up with the provision of large window spaces which often form a considerable part of the exterior walls. To secure an abundant supply of fresh air, any size or arrangement of ventilated areas may be had. Entire walls can be filled with ventilated sidewall sash, and the faces of lantern monitor and sawtooth can be filled with sidewall sash or with long lines of continuous sash, but to secure the full benefit of such installations it is necessary to be able to control the opening and closing of the ventilated areas quickly and easily.

The very extent of the variety of steel sash and the operators by which they are controlled renders their selection and specification of great importance to architects and engineers and in this carefully prepared catalog which is freely offered to those concerned will be found listed, illustrated and described the numerous forms of steel sash and devices for their manipulation which are made by this large manufacturing firm. The scope of the catalog is such that it goes with equal care into the information necessary for the selection of steel sash suitable for use in a comparatively small window area and for the specification of great lengths of sash in which a line of tension rod is used for opening and closing the shafts.

In addition to listing the data which engineers and architects will find necessary in specifying or ordering steel sash this brochure places at the disposal of those interested the services of the company's engineering staff in solving special problems or in working out installations of the most efficient type.

GORTON & LIDGERWOOD COMPANY, NEW YORK AND CHICAGO. "The Gorton Single Pipe Vapor Heating System" (3½ x 6¼ ins.). 16 pp.

Economy in building is promoted by the use of heating systems which require but a single pipe, and economy in operation may be effected by using devices which produce economy in fuel by ready control of the heat. This booklet describes the economy made possible by the use of the Gorton Single Pipe Vapor System which is the result of two Gorton appliances,—the Vapor Air Relief Valve and the Quarter Turn Packing Lock Radiator Valve.

The Vapor Air Relief Valve works independently of any thermostatic action; the air passageway is entirely clear and the area of the passageway is four times greater than that of any automatic air valve. This permits the air to be quickly expelled from a radiator when the supply valve is open, admitting vapor at even the slightest pressure. When the radiator has been cleared of air the vapor will instantly close the inlet opening of the Air Relief Valve. This prevents water from collecting in the

valve and the outlet of the Air Relief Valve being always open it is impossible for a vacuum to form in it. The Quarter Turn feature of the Gorton Radiator Valve makes it even easier to turn off a radiator than to open a window, for merely a turn of the wrist will fully open or close the valve, and because the valve is so easily manipulated heat is saved at the radiators and coal at the boilers, the result being reduced coal bills.

THE STRUCTURAL SLATE COMPANY, PEN ARGYLE, PA. "Structural Slate," Chapters 6, 7, 8 (8½ x 11 ins.). 20, 28, 24 pp.

These are the most recent parts of the slate data that are being compiled under The Structural Service Bureau to show the standardization of sizes, parts and arrangement. The contents of the three are "Urinal Stalls," "Shower Stalls" and "Laundry Tubs, Sinks and Sink Tops," respectively, all presented in a clear and concise manner. Besides a statement by this company concerning its aims in unifying the parts produced, there are shop drawings for jointing and construction and isometric diagrams showing positions and spaces required. Partition and screen heights, for instance, are established, as are other units, with the consideration of all practical purposes in mind, and enough variety in types appear to meet the ideas of all who would benefit by the standardization. Dimension and price charts are to be found with each kind of equipment. Previous chapters in this series are on Geologic Data, Basic Specifications, Stairways, Fittings and Toilet Enclosures.

ANNOUNCEMENTS

The engineering firm of Parsons, Klapp, Brinckerhoff & Douglas announce the organization of Parklap, Inc., for the purpose of further increasing their facilities of handling construction work of all classes, and the continuance of the Parklap Construction Corporation, for the construction of large projects. Home office, 84 Pine street, New York.

Ralph O. Beattie & Co. announce the opening of offices for the practice of architecture in the Fontron Loan & Trust Co. Bldg., North Sherman street, Hutchinson, Kan. Manufacturers' samples and catalogs are requested.

Cram & Ferguson, architects, of Boston have removed their offices from 15 Beacon street and are now located at 248 Boylston street.

Elwin P. Norberg, architect, has opened an office at 6403 Hollywood blvd., Los Angeles, and desires manufacturers' samples and catalogs.

Henry John Burden and G. Roper Gouinlock have entered into partnership for the practice of architecture under the name of Burden & Gouinlock, with offices at 101 King street, West, Toronto.

A. D. R. Sullivan, formerly associate member of the firm of Hoppin & Koen, and Frederick M. Godwin have formed a partnership for the practice of architecture under the name of Godwin & Sullivan, with offices at 350 Madison avenue, New York.

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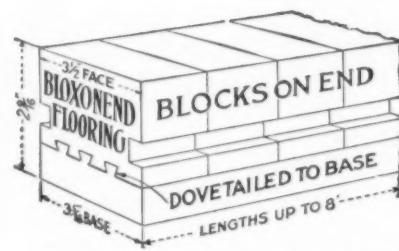
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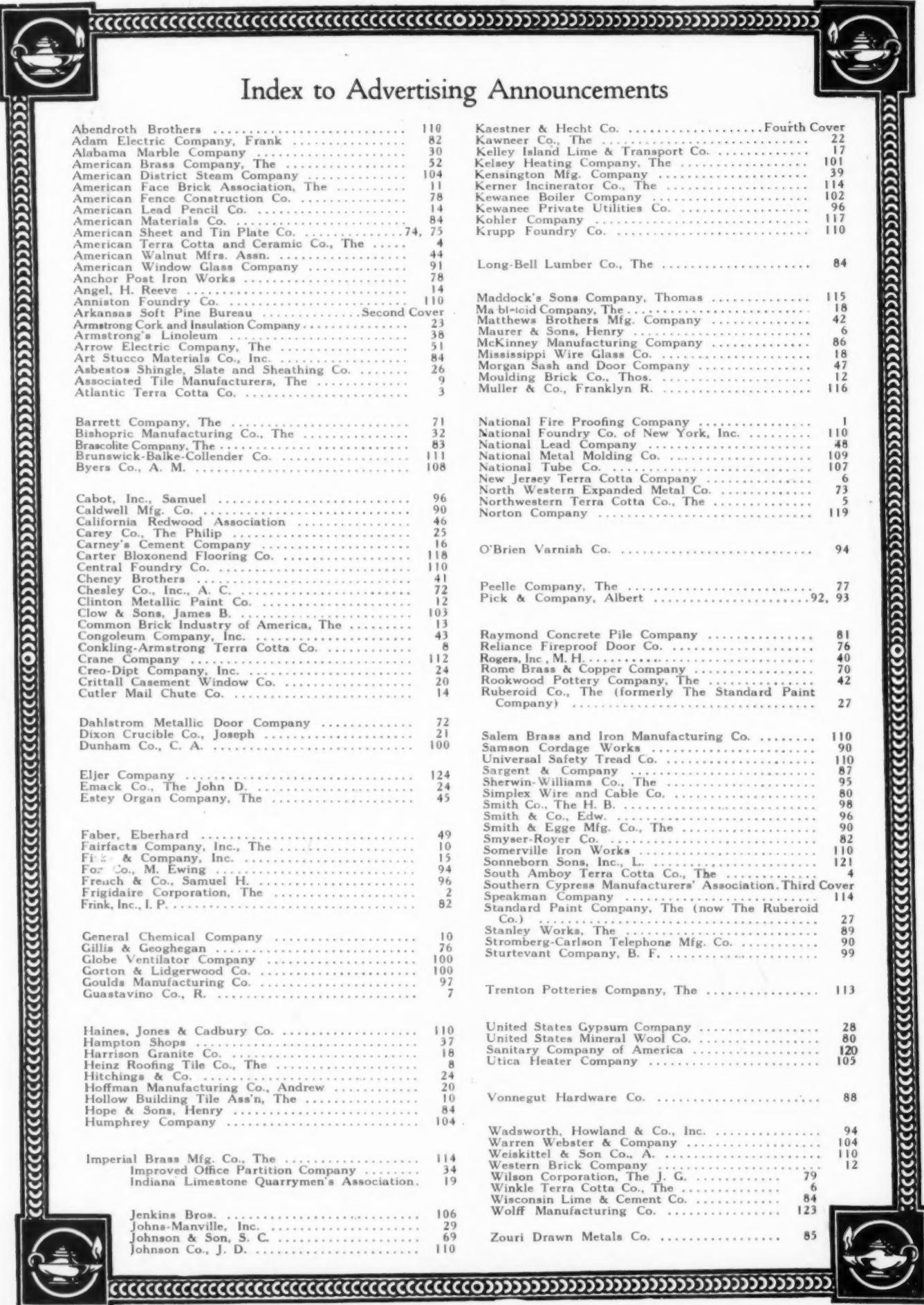
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